

**The Institution of Electronics and
Telecommunication Engineers**



THE ROAD AHEAD

Address by the President IETE



Maj Gen Yashwant Deva, AVSM (Retd)



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The difference between what we do and what we are capable of doing would solve all the world's problems.

- Mahatma Gandhi

Outside IMAX Dome, Theatre at the Tech Museum of Innovations
at San Jose, California, US

It was in the IETE Newsletter that I wrote a piece on hierarchies and networks under the caption "Editor's Musings." The refrain of that piece was that the days of hierarchies are over and that it is an age of networks. Describing networks as more democratic, more federal and *a priori* more open, accessible, and responsive, I had made out a case for their adoption. Recently, I read an article by Robert John Garigue, entitled "Hacking Belief Systems: An Agenda for the Survival of Humanity in Cyber-Society," His thesis is that "for humanity to survive, it has to learn to hack belief systems that are encased in networks." He maintains that the future conflict will be "between the different types of cyber-environments as they continually assimilate more and more of humanity into their network structure. Ultimately, the final battle will be, as usual, between fundamentally different belief systems. The fight will be flesh and silicate against flesh and silicate." He obviously has the developed societies of the world in mind and is oblivious of the prevailing smog and smoke that engulf the under developed world and the societies

in transition, struggling for a place under the sun. Here, the conflict is and shall always be between hierarchies that smack of and betray totalitarianism, babuism and fundamentalism on one side of the divide and networks borne of liberalism, egalitarianism and pluralism on the other. It is not that network cannot be an instrument of infraction and libertine and permissive culture as is apparent from the Internet. However, evil is in content not in connectivity, in application not in design.

Networks have a profound impact beyond their physical borders, confines and boundaries. They can transform political, economic, social and cultural relationships and give them a wholesome integrated identity purveying a systems' approach to resolving societal problems. They lend value to human interactivity and therefore it is as important to network individuals and organizations as it is to inter-web machines. Let us not forget that growth does not come by merely buying computers, but from connecting them to each other, more so by spreading network culture.

Undoubtedly, belief systems are human constructs and they will always be more humane and fallible. So are machines. These too are human constructs and any fault-lines that are designed in them will of sure, sire Frankenstein – lamentably our own creation. The choice between technology and anti-technology too is of our own making. It is a matter of opinion that in cyber environment “belief systems will be less participative and more and more dogmatic, imperative, and totalitarian” as Garigue suggests just because these are “embedded into silicate and demand conformity and uniformity of input.” Of course the danger of humans losing control over the machines is ever present, but to insinuate that it is because of the networks, and therefore inevitable, is indeed erroneous. Whatever be the times, societal mores or the state of the technology, the networks have sustained positive belief systems and have been a

bulwark against tyrannical arbitrariness and impulsivity imposed by the hierarchies.

What are the belief systems that we have chosen to be the lodestar for our Institution? Some are enshrined in our constitution, some envisioned by our mentors and set in the Vision Document of the Institution, others borne of the sagacious agenda of the Government and manifesto of the party in power. We have recently covenanted them and put them down in the brochure. It would be perverse of me if I do not acknowledge contribution of my predecessors and other elders of the institution, who have so painstakingly identified the goals and paved the stepping-stones for us to stride along. The cardinal rootstocks of our inspiration are:

- Social justice
- Economic reforms
- Technological ethos
- Industrial rejuvenation
- Scientific culture
- Professional ethos
- Human resource development
- National security
- Globalization

On this day of our assumption, the members of the newly constituted IETE Council and I reaffirm and avow our commitment to these. We are aware that these are not perfect. There are infirmities, inefficiencies and inequities associated with each one of them. But let me assure you that this is not a laundry list that we have rigged up. We are neither chasing phantoms, nor mouthing homilies just because it is fashionable to do so. It is not a display of emotionalism either as a past president put it. These are an expression of our will; their implementation a sacred agenda for action, our *dharma*, our *kartavya*. Even the much-maligned globalization is ours to boot –

ours to cap. To some it may mean *Vasudeva Kutumbakam*, to others like me the emergence of India as a *Chakravarti* power. Let us not forget that we have a commitment to making India a superpower in IT and SD. That has been so decreed in a Gazette Extraordinary.

E-commerce, the topic that we have chosen for our ATC, is a manifestation of globalization - a concretization of the network economy. In my message to the participants of the ATC, I had observed that e-business is not a monkey business. This is not a flippant remark, but made in all seriousness, underscoring the gravity and vicissitudes of the vocation with its ecstasies and travails aplenty - openings and risks galore. E-business demands more of the professional, the technology suave and the venturesome, and less of the Smart Alec. Capable of generating a new level of economy, both global and national, e-business will, of certain, raise productivity, increase incomes, and create more jobs. It calls for partnership with both the developed and the developing economies on the one hand and recognition of the prevailing ambience of competitiveness and changed perspective on economic growth. The PM unequivocally stressed primacy of the private sector in his address to the US-India Business Summit on 13th September at New York, and said that it be given "maximum encouragement by the State that limits its own role to that of a facilitator and impartial regulator." As to our partnership with the USA, I further quote him, "Having recognized each other as natural allies, India and the United States are poised to vastly strengthen and deepen our bilateral relations in the new century. Let us build a strong foundation of Indo-US economic relations to support the architecture of our natural alliance. ... Our great poet Rabindranath Tagore said, 'Once we dreamt that we were strangers, we woke up to find that we were dear to each other'."

The above notwithstanding, let there be no doubt that a new business culture is emerging, where rules of the game are not the

same as we have been accustomed to. What worries me most is the drift of the business environment from an equitable, technology-driven entrepreneurship to a new variety of cyber capitalism. It is apparent from the buzz expressions that underscore the business strategies. It pioneered with B to C (business to consumer); graduated to B to B (business to business), then the progression (rather retrogression, if so fancied) P to P (path to profitability); the latest is R to R (return to rationality). It is the venture capital that settles the perch. Earlier it sought ideas – brave ideas indeed, from the technology wizards; now it is back to Keynesian philosophy basing decisions on the rationale of infrastructure, and what is commonly referred as “bricks and mortar” with a view to taking the plunge. According to Internet research firm eMarketer, more than 93% of business-to-business e-commerce is transacted through private or proprietary exchanges. With waning of the Web euphoria, small is losing out to the large because there are no takers. Public Internet marketplaces are yielding to private sites for select groups that adhere to pre-negotiated contracts. This may well be India’s impediment and worry.

There will be no greater folly than to venture gown-less on to the Web, hoping others to lend us the towel. There are no friends out there, no laws either; the setting is reminiscent of the days of the gold rush. The test of reaching out to the people is not gatherings in Ram Lila ground, or workers reading the Chinese wall writings, but the number of clicks on the Website. Sample these satirical domain names www.gw.bush.com, www.bush-cheney.net, www.goremitchell.com, that have sprouted for President elections in the US, creating confusion between *bona fide* election sites and pranks and parodies. If the dot-com thrives, so does *dot triple X*, the latter not yet so Christianed to distinguish pornography from commerce. Internet Corporation for Assigned Names and Numbers

(ICANN) plans to take a hefty sum of \$50,000 upfront for new top-level domain (TLD) aspirants to register and if that comes through, it would weed out "emerging companies and effectively skew the competition towards large corporations." Antitrust laws, entrenched interests, monopolies, buy-outs, alliances and mergers further conflicted by domain wars, commercial spying, usurping intellectual property, trade marks and patents (even meditation) *et al*, reflect the prevailing ambience. The Internet is unregulated, the dot-com highly competitive, and the world beset by the cyber divide, fast deepening into unbridgeable chasm. The challenge is intense; so are satisfaction level and the reward if one makes it.

Where does India figure? It would be wise to see how others identify us rather how we perceive ourselves, or more aptly, misconceive our strengths and capabilities. Last month McConnell International in collaboration with World Information Technology and Services alliance (WITSA) published an e-readiness report analyzing 42 critical economies "for their capacity to participate in the global digital economy." Others are either way up the ladder, or way down. India is amongst the reckoned with a mix of complements and criticism; less of the former and a good measure of the latter.

McConnell report claims that the 42 critical economies it picked on "have recognized the potential of information communication technology (sic, abbreviated ICT) and represent the source of the next phase of world economic growth." In other words, they are would-be peers of the developed world, who the dot-com-arrived will compete with. Admittedly, the timeframe and will to do so remain question marks. The potential competitors consist of 17 countries of Europe, 8 of Americas, 6 of Middle East/Africa and 10 of Asia/Pacific. In the last mentioned, China, Indonesia, Malaysia, Pakistan, Philippines, South Korea, Taiwan, Thailand and Vietnam figure

besides India. "These countries comprise nearly three quarters of the world's population and a quarter of the world's GDP." The report rates these countries on the basis of the current status and progress on five inter-related attributes, viz. connectivity, e-leadership, information security, human capital and e-business climate. India is rated amber in four attributes and red in the fifth, i.e. connectivity, our greatest failing, ignominy of which we share with eight of the ten other Asian economies on the upswing. The report states that even with its reputation of a software powerhouse, India has "one of the lowest tele-densities in the world, standing currently at approximately 1.5 lines per 100; PC penetration is considerably lower at approximately 0.2 per 100." Many in this audience will dispute the figures, but that is not the issue. The question is that when we arrive, where would others be? With rapid global proliferation of connectivity, will we acquire the capability to keep our mission-critical, high volume Web sites accessible? Or would we take the path the Web giants took betraying vulnerability to denial of service attacks? Broadband access, wireless application protocols (WAP), digital media, convergence, personalization, voice portals, sniffing software robots are no more on the anvil, they are in the market aplenty. When the user glut of fanciful computing goodies reaches its zenith elsewhere, where would India be with MTNL and DOT going on strike and holding the nation to ransom? Have we not sent a wrong message to the entire world, negating all the assurance that the PM gave only a week back? And then what happens to that big talk of becoming a superpower?

It would be wise of us to look at the findings of McConnell report in the broader setting of emergence of the New World Information Order; the taxonomy of digital Mall; the dot com culture; the cyber scams, threats and hoaxes; the ubiquitous traits and idiosyncrasies of the Web; and other connected issues that have

recently hogged the headlines. These are relevant to e-business, as indeed to e-governance, inseparable twins as they are.

And now to the Road Ahead - our agenda for action, realization of our vision, I start with the internal hierarchies that have become a noose around our neck. When the Institution was started, it was a network of visionaries, who had pragmatic and clear ideas about the Road Ahead. As we expanded, power-wielding committees sprang up; we became conscious of *varna*-endowed privileges. Time has come for us to strike down pyramid-like structures of decision-making that smell of decadence, of dead mummies, of fossils, howsoever resurrected; and instead build a participatory and interactive network of the living, and the vibrant, who are technology savvy and are wedded to our culture, our way of life, our values. The concept of networking is in tune with the time-tested Indian philosophy of life, traditions of heterodoxy and thirst for knowledge borne of the abiding credulity of the seeker and technical ethos. It is aptly reflected in our motto too: *saha veeryam karvavahi*.

We have cut down the number of committees from 11 to 7. Over the years, they have lost their relevance and have become dysfunctional. We have rehashed some committees and changed the vista of others. During the last council meeting, a decision was taken to create a Board of Examinations. We now propose to add a Board of Research and convert erstwhile Awards Committee to a board, naming it as a Board of Recognition of Excellence.

Research has been a neglected field in the past. Our only contribution has been a Journal of Research, which is merely a collage of research done elsewhere. There is no in-house research, particularly pertaining to the policy issues and industry-focused applied fields. I have taken a cue from the USI, which runs a Center

for Research and has five Research Seats, sponsored by the Army, the Navy, the Air Force, the DRDO and the MEA. I have completed a project with them under Prof D S Kothari, DRDO Chair on "Emerging Global and National Information Infrastructures and their Security Implications." Based on this project, a book *Secure or Perish* has been published. Other initiatives worth studying and emulating are: National Industrial Infrastructure Protocols (NIIP), Financial Services Technology Consortium (FSTC), Organization for the Advancement of Structured Information Standards (OASIS), Electronic Commerce Task Force Industry, Canada, International Standards for Electronic Commerce (ISEC) Korea and many other organizations which have come up in the developed and the developing world.

It is this kind of research that I have in mind to promote on the IETE platform. We hope the Government, the Industry, the business houses, the academia, the research establishments and the Defence Services come forward and create corpus, establish research seats, identify projects, recommend scholars to conduct research, and render help in other ways. It will be a valuable contribution to the national effort on the one hand, and provide right kind of ambience and opportunity to the scholarly pursuits on the other.

We have not fallen from academic favour. That is a singular achievement indeed. Let us cash on it and further improve the standards, widen the span of academic activity and strengthen the integrity of the system. Two more streams, Computer Sciences and Information Technology have been introduced from this December. The Institution is on the right path, truly with the times and the needs of the society.

All India Council for Technical Education (AICTE) has recently proposed to launch CEP-2010, giving a new orientation to the

Continuing Education Programme which the Government initially started in nine institutions, including four IITs and five TTTIs way back in 1988. Of its own admission, the AICTE has deplored the tardy progress, saying that it was not pursued properly due to certain factors like lack of financial resources and manpower and thus failed to deliver. A couple of years back, we had a discussion on it in the Apex Forum. It was my plea that instead of concentrating on elitist education, we should focus instead on non-formal education. My views, radical as they portend, did not find favour. I am happy that AICTE has carried out an objective appraisal, identified the malaise and modified their thrust areas. I quote from their letter, "Most disturbing trend is the involvement of certain universities, who have affiliated private institutions running various programmes in management and computer field such as BBA, BCA, BIT, MIT etc. without AICTE's approval. The growth in this unorganized sector is so rapid that almost a parallel network of education system has come into being, bypassing AICTE regulation. This situation is misleading the society at large, because of ignorance of the public on legislation in education. Added to the woes is the existence of several fake universities in the country as evident from various public notices in dailies." We fully endorse their observation that "there is an urgent need for innovation in education system leading to technology driven education, so as to produce efficient and worthy technical professionals on a flexible pattern of education system. Accordingly, we have created a task force for developing a model for CEP-2010 and actively participating in AICTE's laudable endeavours.

The larger chunk of our membership comes from the student community. Currently we have no forum to regularly interact with them. For form sake we conduct yearly ritual of student AGM and hold a paper contest. Whereas the local centers have a student committee to discuss student viewpoints and debate on their

problems, we have none at the headquarters. In the former case too, focus is limited to academic activity. It needs to be widened to embrace all facets of HRD, personality building, preparing for competitions, career counseling, dispensing new skills of computation and networking, dissertation writing and e-surfing for knowledge. A forum has been created just for this purpose. The forum will also identify the aspiration level of students completing their school/college education and for making them employable in competitive industrial environment and address thrust areas for CEP as proposed by the AICTE. These proposals can then come up for discussion in the Academic Committee. I would also request Academic committee to look into the modalities of grant of "dual degree" in the popular streams of Computer Sciences and IT for students pursuing engineering in other fields.

Taking guidance and inspiration from the way Samrat Ashoka propagated Dhamma by unburdening it from language, we plan to dissociate language from learning, concentrating instead on the content. John Keay writes in his history of India, "Adoption of local scripts and languages shows Ashoka appealing directly not only to his own people but to other people beyond his frontiers and to other generations beyond his times." We have introduced Hindi as an option for diploma level examinations from this December, and shall adopt other Indian languages by and by. The language and its idiom that we have in mind, will be simple, direct, unstilted and not artfully organized for memorizing. The technical terms will be retained as they are in English.

The Government of India created a working group on IT for the Masses, under Prakah Javadekar. Its members of this group have been our leading lights too – Prof Inderesan, Prof Jhunjhunwala, Dewang Mehta, A K Soni, S Ramakrishnan and Y K Sharma. The

working Group has set laudable goals; though indeed a massive task – 100 million computer literates; knowledge of computers a compulsory requirement for government to be acquired in two years; computer education facility in minimum of 10 schools in each of the country's 6000 blocks, and so on. We intend taking it on as an agenda for the Institution; we have created a task force for the purpose. We propose to make our own staff computer literate within two years and go rural. For this year, we have set a target of establishing one center each in the four zones. We have plans to take computer literacy programme to remote areas.

The erstwhile committee on industrial coordination has been wound up. It had hardly any issue to discuss. Instead a forum with a wide representation of the Industry has been created. It will organize round-table discussions at various stations on vital issues of the day. We invite the industry to patronize us. We could be their research arm – a part of the innovative culture, a part of the cyber culture, the e-culture. We could help in setting up Virtual Enterprises through collaborative computing; conduct project studies on organization size, geographical and Web location, computing environment, and relevant technologies. We could help in process implementation and talent search. We have in mind the example of National Industrial Information Infrastructure Protocols (NIIP), whose protocols are viewed by Advanced Research Project Agency (ARPA) as one of the fundamental building blocks of NII.

We could be Industry's academic arm, assist them in HRD, take on general courses under CEP 2010 and industry-specific training on subjects that we specialize in. We could be their public relations arm, and help them reach out through our networks. We could carry their message across on our Web site and publications and advertise their products and services. We could help businesses with object

oriented technology and programming adapters that makes the intricacies of communication networks transparent to users. We could help them increase their competitiveness in dot com. We could render guidance in creating consortia and networks in knitting industry with their peer industrial houses and entrepreneurs with the Government. Our message is, try us. For sure, we have ideas to sell free, besides recognition of excellence to dispense.

If El Gore can take pride in having been a journalist during Vietnam war, let us take pride in "taking technology to the trench." The soldiers need telephones, walkie talkies, PCs and above all connectivity rather than discarded blankets and garments, and visits of VIPs to Army hospitals. Let us give them opportunity to acquire engineering skills, computer literacy, and after-name adornments – if for nothing else to find brides when they are young, and sit in the front rows should they reach ripe old age. The Chinese have a laudable programme of creating what they call, a synergy between the market and the battlefield. Let us follow their example.

Let me now sum up the agenda that we wish to pursue and the goals that we have set for ourselves:

1. Hack Hierarchies, Create Networks: Debate Less, Perform More

- Reduce number of committees.
- Adopt the cardinal precept of distributed decision-making.
- Create internal networks and databases.
- Establish interactive forums.
- Double corporate membership, each member to enroll one more.
- Organize technology *baithaks* at village and *mohalla* level.

2. Lend Primacy to Research

- Establish research seats
- Create research corpus.

3. Go Rural, Spread Technology Culture and Bind Remote and Border Areas to the National Mainstream.

- Establish rural centres, for the beginning, one in each zone.
- Join Computer Literacy Campaign.
- Promote CEP.
- Concentrate on connectivity, creativity, content (C Cube).

4. Establish Online Profile

- e-publicity
- e-ideas
- e-journal
- e-advertisement
- News, views and reviews.

5. Create Partnership with Industry and Peer Institutions.

- Help telecom, electronics and IT industry to find new solutions, acquire a Web presence and a global focus.
- Increase organizational membership.
- Conduct surveys and provide advisory services.
- Conduct general-purpose CEP and industry-specific training programmes.
- Create database of expertise and provide consultancy on placement.
- Organize joint meets and seminars with industry and other professional bodies at various stations and provide effective platform for interaction.
- Advertise "Made in India" products on our publications and Web site.

6. Take Technology to the Trench.

- Promote e-security.
- Undertake studies in information warfare technologies.

Ours is not “a pie in the sky fixation.” Our ideas are down to earth, inspired by the adage, “If you wish to leave footprints on the sands of time, do not drag your feet.” These ideas and agenda reflect our determination to achieve the goals howsoever ambitious. I quote from Gordon Moore, which too adorns the wall of Tech Museum:

If everything you try works,

You are not trying hard.

We aspire to be the outriders to the government’s campaigns – computer literacy, continuing education, content creation etc. I entreat this audience to consider us as the “brick and mortar crew” for building a knowledge society, and a think tank to come up with some fresh ideas.

We need funds for all this. Funds for creating research seats, funds for going rural, funds for going on-line, funds for creating e-libraries, funds for spreading computer literacy, funds for imparting continuing education and lending quality to our academic programmes. We need donations. A new breed of philanthropists has to come forward to help us.

We need support from the media; we need an IETE caucus to take up issues that rancour us; and we need champions to champion our cause, as our elders the past presidents identified the panacea and willingly volunteered to be the ones.

The Government can only create task forces. It can only launch campaigns. It is we, you and I, who have to take on the burden

of soldering. We have to fight the ills of this society, ills of the times, ills of the environment – poverty, illiteracy, ignorance, deprivation *et al.* Let us therefore gird up.

Tasmad uttishth kauntay, yudhay krit nishchaya.



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