

APJ

**Address & interaction with Engineers, Technologists, & Staff of
Vishwak Solutions
Chennai**

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Dimensions of communication in 21st century

*The dream is not that you
see in sleep, dream is
which does not let you
sleep.*

I am delighted to be with you all on the occasion of **Release** function of Vishwak Solutions. My greetings to all of you. Friends, IT industry in the last few decades has given a pride of place for India in the world. Among the many contributions it has done, what I would rate as the most significant is the confidence it has given to many youngsters in enterpreunership. The IT industry has to compete in the environment of competitive technology and market of IT world. IT with its unlimited potential in every facet of human endeavour offers opportunities and challenges, be it in research, development, social sciences, governance or individual growth. With this background and to suit your focus and missions, I have selected a topic based on my experience. Let me share my thoughts on **"Dimensions of communication in 21st century"**.

Mobile based life-style and work force

I visualize a hundred percent mobile telephony based office. When I am saying this you sound of telephone ringing and in front of me Alexander Grahmbell appears. The inventor of telephone, the

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purpose he was after that device to communicate with his mother and wife who were both hearing impaired. One decade ago, if a telephone beeped, it was someone you know who was calling you. Today, when I hear a ring, it could be a voice call, a video call, an email, a whatsapp message, an sms, google chat, a file sharing, an image exchange, office conference, an App update, or family call skype, twitter, facebook from an old friend half way across the world or a twitter from your favourite celebrity. Thus, the whole world has condensed to a four inch phone which one can carry in their hand. I visualize a scene where all office work from morning to evening and sometimes even midnight to match time zones, will be done in a 100% paperless and 100% transportless mode. Files will be created, stored and transmitted in electronic forms only and office meetings will happen over mobile based video call. Voting will happen by encrypted sms' and all financial transaction will happen over internet/mobile banking. In such a world, transport to office would be history and people will work from the comfort of their family and home. Imagine how much fuel saving, time saving, toll savings, removing discomfort crowded travel, increase in family time, and savings in green house gases emissions will be generated. Office spaces, today occupying hundreds of acres in a single locality can be converted to green parks, social infrastructure, research facilities and expanded homes spaces. I also envision that every home, will have a home library with at least ten books of wisdom. Such home library can also be a mobile based digital library. How do we achieve this? The type of technology

needed: fast and reliable data transferred, high encryptions, depth of mobile penetration, and training on usage of such technologies to the last person. Such type of creative and responsible usage of mobile based technology should be a part of the school level.

When I am in your midst, I realize that Vishwak Solutions promotes excellence in thinking and action. What is excellence?

Culture of Excellence

Friends, you all belong to the youth community, which should stand for culture of excellence. Moreover, excellence is not by accident. It is a process, where an individual or organization or nation continuously strives to better oneself. The performance standards are set by themselves, they work on their dreams with focus and are prepared to take calculated risks and do not be deterred by failures as they move towards their dreams. Then they step up their dreams, as they tend to reach the original targets. They strive to work to their potential, in the process, they increase their performance thereby multiplying further their potential, and this is an unending life cycle phenomenon. They are not in competition with anyone else, but themselves. That is the culture of excellence. I am sure; each one of you will aspire to become unique with culture of excellence. With the culture of excellence, how an IT industry can evolve into a knowledge system powerhouse.

Knowledge System powerhouse

When I see the IT experts in front of me, I was thinking how Indian IT industry can provide a step input for the growth of ICT sector in the next ten years? It is possible only through certain out of the box solution. IT business and mission are definitely going to change. IT solution will enlarge to knowledge products and systems. For example take Bio-informatics. Convergence of Nano-Bio-IT products and evolution of systems through world knowledge platform based on the core-competence of multiple nations will enable realization of best of products competitively. In such missions, value addition and wealth generation multiplies many folds. I visualize an integrated communication infrastructure with global knowledge resources using multiple technologies such as IT, Satellite communication, fiber optic communication and wireless using hardware and software talents that will power the global sourcing in an internet-2 environment.

The integrated mission's architecture, design, technology development, realization of the products and leading to system delivery may take place in multiple partner countries with the integrating responsibility located at a nodal center. This type of challenge will need the working together of many IT companies within the country in a consortium mode and accepting partnership from many countries in the world. In the implementation process people do not move from one country to another, only the ideas move as electrons. Can Vishwak in association with Indian IT industry take up the challenge of such a vision and progress?

Indian IT Industry should work on policy initiatives with the government in this direction.

My question is whether the ICT industry and IT academia is ready to take the challenge of system design of knowledge systems in a collaborative environment based on the core competence of the partnering institutions located in different geo-political boundaries. I hope certainly Vishwak will take up that challenge with the culture of excellence that they practice to create innovative solutions.

Now let me discuss with you what is needed to realize such mission. Creative Leadership is the essence.

Creative Leadership leaders to national development

Friends, I have seen three dreams which have taken shape as vision, mission and realization. Space programme of ISRO (Indian Space Research Organization), AGNI programme of DRDO (Defence Research and Development Organization) and PURA (Providing Urban Amenities in Rural Areas) becoming the National Mission. Of course, these three programmes succeeded in the midst of many challenges and problems. I have worked in all these three areas. I would like to convey to you what I have learnt on leadership from these three programmes:

1. Leader must have a vision.
2. Leader must have passion to realize the vision.
3. Leader must be able to travel into an unexplored path.
4. Leader must know how to manage a success and failure.
5. Leader must have courage to take decisions.

6. Leader should have nobility in management.
7. Leader should be transparent in every action.
8. Leader becomes the master of the problem, defeats the problem and succeeds.
- j. Leader must work with integrity and succeed with integrity.

Let me illustrate these characteristics through our national programmes.

Vision for self-sufficiency in food

The vision for the First Green Revolution emanated during the 1970s from the political leadership of Shri C. Subramaniam. With the Visionary leadership of Shri C. Subramaniam, the team with the scientific leadership of Nobel Laureate Dr. Norman Borlaugh and Dr. M.S. Swaminathan, with the active support of Shri B. Sivaraman, Secretary Agriculture, Dr. M.S. Swaminathan in partnership with agricultural scientists and farmers liberated India from the situation of what was called "ship to mouth existence". Through an effort of historical magnitude, India attained near self-sufficiency in food through "Seed to Grain" mission. As part of this first green revolution, the country has been able to produce over 236 million tonnes of food grains per year now. Of course, farmers played a pivotal role in working with agricultural scientists in farm itself.

The political leadership and the scientific leadership has been able to build the capacity among our scientists, researchers and farmers to take up the mission of "**second green revolution**" which

is indeed a knowledge graduation from characterization of soil to the matching of the seed with the composition of the fertilizer, water management and evolving pre-harvesting techniques for such conditions. The domain of a farmer's work would enlarge from grain production to food processing and marketing.

India has now embarked upon the Second Green Revolution which will enable it to further increase the productivity in the agricultural sector. By 2020 India would require to produce over 340 million tonnes in view of population growth and increased purchasing power. The increase in the production would surmount many impeding factors such as reduce availability of land, shortage of water and reduced availability of agricultural workforce. Our agricultural scientists and technologists in partnership with farmers have to work for increasing the average productivity per hectare has to be increased three times compared to present productivity. The type of technologies needed would be in the areas of development of seeds that would ensure high yield varieties even under constraints of water and land.

Now I would like to talk about a leader who ventured to travel in an unexplored path.

Traveling in unexplored path

I was fortunate to work with Prof. Vikram Sarabhai for seven years and while closely working with him, I saw the dawn of the vision for the space programme in a one page statement. Witnessing the evolution of this one page by a cosmic ray physicist, a great scientific mind and be a part of the team which has been working ceaselessly for many years to realize the vision have been of really great learning for me. Also I am thrilled to see the famous vision statement of Prof Vikram Sarabhai made in the year 1970 which states *"India with her mighty scientific knowledge and power house of young, should build her own huge rocket systems (satellite launch vehicles) and also build her own communication, remote sensing and meteorological spacecraft and launch from her own soil to enrich the Indian life in satellite communication, remote sensing and meteorology. The projects selected in space programme, are designed to meet the societal needs"*. Total 150 transponders are there in the geo-synchronous orbit for providing connectivity to the nation. If I look at this vision statement today, I am overwhelmed to see the results of this statement. Today India can build any type of satellite launch vehicle, any type of spacecraft and launch them from Indian soil. India also has launched Chandrayaan and has successfully placed the satellite in Lunar Orbit and now it is preparing for manned missions to other planets. India has proved that through space science and technology, we can provide effective communication, resource mapping, disaster predication and disaster management systems.

Managing success and failure

Friends, three decades ago while I was working at ISRO, I had the best of education which won't come from any university. I will narrate that incident. I was given a task by Prof. Satish Dhawan the then Chairman, ISRO to develop the first satellite launch vehicle SLV-3, to put ROHINI Satellite in orbit. This was one of the largest high technology space programmes undertaken in 1973. The whole space technology community, men and women, were geared up for this task. Thousands of scientists, engineers and technicians worked resulting in the realization of the first SLV-3 launch on 10th August 1979. SLV-3 took off in the early hours and the first stage worked beautifully. Even though all stage rockets and systems worked, the mission could not achieve its objectives, as the control system in 2nd stage malfunctioned. Instead of being placed in the orbit, the Rohini satellite went into Bay of Bengal. The mission was a failure. There was a press conference at Sriharikota, after the event. Prof. Dhawan took me to the press conference. And there he announced that he takes responsibility for not achieving the mission, even though I was the project director and the mission director. When we launched SLV-3 on 18th July 1980, successfully injecting the Rohini Satellite in to the orbit, again there was a press conference and Prof. Dhawan put me in the front to share the success story with the press. What we learn from this event is that the leader gives the credit for success to those who worked for it, and leader absorbs and owns the responsibility for the failure. This is the leadership. The scientific community in India has the fortune

to work with such leaders, which resulted in many accomplishments. This success generated great happiness among all my team members. This is an important lesson for all youth who are aspiring to be tomorrow's leaders. The great lesson we learn: the leader in any field, political, administrative, scientific, education, industry, judiciary, or any other human activity, should have the creative leadership capacity and courage to absorb the failure and give the successes to his or her team members. This I learnt and learnt all the way.

Nobility in thinking

Friends, when I was the Project Director of SLV3 programme Prof. Brahm Prakash – was the Director of Vikram Sarabhai Space Centre (VSSC). I have worked with him for 7 years. I have seen during the crucial period of SLV3 rocket development, many technologies have to be developed. At the same time, Prof. Brahma Prakash has to create in VSSC, an environment of Trust in managing nearly 5000 scientists and staff. Always all his decisions will be transparent and will be communicated to all the levels through the form daily bulletins. Also I have seen even in a crucial period of taking a technological decision and conflict resolution, always Brahma Prakash will be for the growth of the technology and for the success of the programme, rather than any other consideration. Hence the whole organization called him as a scientist with nobility.

He took hundreds of decisions for the growth of space science and technology. One great decision which I will always cherish was "once a programme such as SLV3 is sanctioned the multiple laboratories of Vikram Sarabhai Space Centre and also the multiple centers of ISRO including the Space Department have to work to realize the stated goals of the programme as a team. Particularly during 1973 – 1980, there was a tremendous financial crunch and competing requirement from many small projects. He converged all scientific and technological work to be focused towards SLV3 and its satellite.

Work with integrity and succeed with integrity

Dear friends, in 2010, I visited Mussoorie and interacted with the 85th foundation batch of newly inducted civil services and also addressed the Mid-Career Civil Services Officers Trainees (18 years service). I talked to the Civil Service officers about creative and innovative leadership and evolution of a better world. After the session, some unique questions were raised by the participants which highlight the opportunities and challenges in governance faced by the nation's highest level of bureaucracy. I thought of sharing them with you and get your views on them.

I asked the young officers to find how they can be creative leaders who can pioneer great missions in life. After the lecture, one young lady officer got up and asked, "Dr Kalam, the bureaucracy is trained and known for maintaining status quo". In this context, how can I be creative and innovative? Another young officer said, "dear

Sir, right now, at the start of our service, we are all ethically upright and resolute for integrity. We all want to work hard and make a change. But in a decade's time, in spite of our surroundings, how do I still maintain the same values with enthusiasm?" To these questions, I replied that the young officers entering into the governance have to determine a long term goal for which they will be remembered. This goal will inspire them at all times during their career and help them overcome all problems. I told them that the young bureaucrats of the nation have to remember that when they take difficult missions, there will be problem. Problem should not become our captain, we have to defeat the problem and succeed.

Another young officer asked me, "Dr. Kalam, just now you administered an oath "I work with integrity and succeed with integrity". But the political system and seniors who are corrupt, would definitely put pressure on the young bureaucrats to compromise on their ethical standards, how can we tackle this problem?" I thought about this problem which is very pertinent and practical. I responded recalling my own experience where I worked very closely with political leaders and administrators including positions like Secretary – in Defence Research and Development Organization and Scientific Advisor to the Raksha Mantri, Principal Scientific Advisor to the Govt of India. In all these positions, I was in charge of large missions with huge capital investments. I recall that at no point did any leader or administrator approach me for favours.

Then I told the young officers that they can definitely establish a brand of integrity for themselves which will be called circle of your brand to keep away all those who want make them compromise ethically. Of course, this may mean facing some problems as an individual growth. Finally the best in human being will succeed in life.

Friends, so far I have discussed with you certain unique dimensions of creative leadership for the governance. Here, let me recall a profound saintly message to all of us by Maharishi Patanjali 2500 years ago.

"When you are inspired by some great purpose, some extraordinary project, all your thoughts break their bounds. Your mind transcends limitations, your consciousness expands in every direction, and you find yourself in a new, great and wonderful world. Dormant forces, faculties and talents come alive, and you discover yourself to be a greater person by far than you ever dreamt yourself to be."

Conclusion

Since I am in the midst of Vishwak community, I would like to put-forth a thought: ***What would you like to be remembered for?*** You have to evolve yourself and shape your life. You should write it on a page. That page may be a very important page in the book of human history. And you will be remembered for creating that one page in the history of the nation – whether that page is the page of invention, the page of innovation or the page of discovery or a page of

creating knowledge system power house, or the page of creating societal change or a page of removing the poverty or the page of fighting injustice or planning and executing mission of connecting people and missions.

My best wishes to all of you to success in your mission of providing the best talent who will use their ideas and mind power for a better India and the better world.

May God bless you.

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