CHAPTER NINE

Dr. Kalam’s Leadership
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Dr. KALAM’S LEADERSHIP AND HIS VIEWS ON VARIOUS FACETS OF TECHNOLOGY MANAGEMENT AND TRANSFER

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CHAPTER NINE

DR. KALAM'S LEADERSHIP AND HIS VIEWS ON VARIOUS FACETS OF TECHNOLOGY MANAGEMENT AND TRANSFER

“When your hopes, dreams and goals are dashed, search among the wreckage, you may find a golden opportunity hidden amidst the ruins”

Dr. APJ Abdul Kalam

9.1 Introduction

Today India's technological endeavors to assert its sovereignty and strengthen its security are questioned by many in the world. Sanctions by the developed countries are one step towards this. A few nations, who have grown very strong technologically, over the past few centuries, have wrested control into their own hands, for their own purposes. These major powers have become the self-proclaimed Leaders of the New World order. We have no other option but to be technologically strong. One man who has complete faith in the one billion people of India is Bharat Ratna Dr. APJ Abdul Kalam and he gives an emphatic ‘Yes’ to the question “Can India be a Leader in the field of Technology?”

We have seen the success of “Integrated Guided Missile Programme” under his Leadership. The researcher was studying in XI standard when his father was posted to Research Centre Imarat, (RCI), a Centre of Excellence in Missile Technology. Dr. Kalam's dreams were made reality by his team. It was a wonderful experience to see stone riddled land turn into a fully-grown Centre where science, technology, nature and men could progress together under the caring guidance of Dr. Kalam in a record time of three years. The researcher has keenly looked that made it happen. AGNI came out of this Centre and became the symbol of Nation’s Strength. Dr. Kalam wrote -
“Do not look at AGNI
as an entity directed upward
to deter the ominous
or exhibit your might;
It is fire
in the heart of an Indian.
Don't even give it
the form of a missile
As it clings to the
burning pride of the nation
and thus is bright.”

The researcher looked for the answer where in the “Scientist” was the hero of the Nation and the Nation stood behind the ‘AGNI Man’ Dr. Kalam. The views of Dr. Kalam on Technology Management and Technology Transfer are a guiding force for the scientists of the country.

9.2 Scientific Manpower

“Technology, unlike science, is a group activity. It is not based on an individual intelligence, but on the interacting intelligence of many. I think the biggest success of IGMDP is not the fact that in record time the country acquired the capability of making five state of the art missile systems but that through it, some superb teams of scientists and engineers have been created. If some one asks me about my personal achievements in India rocketry, I would pin it down to having created an environment for teams of young people to put their heart and soul into their missions” says Dr. Kalam.

India has one of the largest scientific manpower in the world but still we are developing country. Our young men and women who have gone abroad did well for themselves and for the country of their choice. The question is, why the same breed of youngsters could not succeed in India. The reason is simple: Teams are much like children in spirit. They are excitable, full of vitality, enthusiasm, curiosity and the desire to please and
As with children, however these positive attributes can be destroyed by the behavior of misguided parents. Environment must offer scope for innovation. Innovation needs risk taking. Once a fear of risk taking is removed from the mind of the team and positive environment is created, a motivated team gives excellent contribution to win collective glory.

Organisation support is a key to the success of the teams. The concept of Technology Management has its roots in the Developmental Management models. These models originated in the early sixties out of a conflict between harmony seeking and output oriented management structures. There are basically two types of management orientations i.e. primal, which values an economic employee, and rational, which values an organisational employee.

Dr. Kalam’s concept of management is woven around an employee who is a technology person. While the primal management school recognises people for their independence, and rational management acknowledges them for their dependability, Dr. Kalam values them for their interdependence. The primal manager champions independent enterprise. The rational manager serves cooperation. He moots interdependent joint ventures, getting the forces together, networking people, resources, time schedules, costs and so on.

Abraham Maslow was the first person to moot the new psychology of self-actualisation at a conceptual level. In Europe, Rudolf Sterner and Reg Revans developed this concept into a system.

In order to succeed one has to understand the difference between a fear-ridden vision of destiny and vision that enables us to seek the enemy of fulfillment within ourselves. Dr. Kalam relates his experience with his first Project NANDI - India’s first indigenous hovercraft. The project was completed ahead of schedule, a working hovercraft moving on an air cushion of about 40mm with a load of 550 kg including the tare weight was ready. Not many people shared his dream with regards to military application of indigenous hovercrafts. The project was mired in controversies and them was
finally shelved. Dr. Kalam says ‘It was a new experience for me. So far I had believed that the sky was the limit, but now it appeared that the limits were much closer. There are boundaries that dictate life. You can only lift so much weight, you can only learn so fast; you can only work so hard; you can go so far. I was unwilling to face reality. I had put my heart and soul into ‘NANDI’. That it would not be used was something beyond my comprehension. I was disappointed and disillusioned.”^50

It is here the system has to play a part as if to say – that the best way to win is not need to win. The atmosphere of belonging can take out all disillusions and the team can again play a positive innings for the next match. Teams are built by a Leader, a selfless person who has respect for human values, sentiments and knowledge. A scientist or innovator is a sensitive person who has to be handled with care. Involvement of the person is key to success. Success of AGNI was due to the team effort including the families of the scientist and engineers. Dr. Kalam says, “The success of ‘AGNI’ had put our country in a state of ecstasy as if we had overwhelmed all the vanity of the super powers. During the integration of 'AGNI' an incident took place. A scientist, who was an expert in integration, had called up his house in Hyderabad from the site to ascertain if every thing was all right, as he was away for over 40 days from home and family. His wife did not sound very clear or phone and the line was transferred to his father, who assured him that everything was alright and wanted to know when he would return home. A few days later, having just returned from a successful launch, he found his wife crying; to dismay he found out that his wife’s brother had died a week earlier in an accident. The family had not informed him for fear of disrupting his work on ‘AGNI’ as such sad news might imbalance him mentally and affect his great mission. I bow before to the families with both hands folded.”^49
One must create an environment for the team of scientist to put their heart and soul into the project. That is what Dr. Kalam achieved.

9.3 Project Management

A successful project management must look into the following:

(i) Technology Inputs
(ii) Administrative & finance input
(iii) Project team
(iv) Communication
(v) Project Leader

9.3.1 Technology Inputs: It is necessary to review the technologies required to complete the project. The degree of maturity of the technologies required is the essence of the success of the project. One must outline the degree of maturity and availability of the technology and the time frames. Number of methods is available to judge the maturity of a technology. These techniques must be applied at the beginning of the project. Availability of the technologies from other countries must be fully evaluated against sanctions and other controls. Dr. Kalam approach to technology input was to utilise the resources at universities and IITs to deliver the required technology package. He made a task team to evaluate the strength of various IITs and universities in a given technology, the task to create a synergy of scientific talent. His effort has borne fruits, Prof. SM Deshpande of IISc formed a team of young bright scientists in the field of fluid dynamics and within six months, developed the software for computational fluid dynamics for Hypersonic Regime, which is one of its kind in the world. Missile Trajectory simulation software ‘Anukalpana’ was developed by Prof. IG Sarma of IISc. It evaluates multi target acquisition capabilities of an AKASH-type - weapon system. Prof. Bharti Bhatt of IIT Delhi developed ferrite phase shifter for use in the
multi function, multi tasking 3-D phased array Radar for surveillance, tracking and guidance. Prof. Saraf of IIT, Kharagpur made a millimeter wave antenna. It is always possible to get the technology needed for a project in a given time frame, provided we are clear about what we want and have the desire to probe outside our own orbit.59

9.3.2 Administrative & Finance Inputs: Success of any project is not possible if administration and finance input are lacking. Our system of control is century old and left behind by British. It treats every individual as if the system has no faith in him. The major hurdles are inherent inelasticity in the approach of the organisation towards procurement and sub-contracting. While executing the RATO motor project Dr. Kalam was told by his teammates to ask for seven liberties.

(i) Financial approval by a single person
(ii) Air travel by all on work when necessary
(iii) Accountability to only one person
(iv) Lifting of goods by air cargo
(v) Sub-contracting to private sector
(vi) Placement of orders on technical comparison rather than cost
(vii) Expeditious accounting procedures

9.3.3 Project team: Any one who has taken up the responsibility to lead a team can be successful only if he is sufficiently independent, powerful and influential in his own right to become a person to reckon with. Such person can demand the reasonable administrative and financial support. Dr. Kalam says, “The truth is that there is a great deal that most of us individually do to increase our freedom. We can combat the forces that threaten to tame us. We can fortify ourselves with the qualities and conditions that promote
individual freedom. In doing so, we help to create a stronger organisation capable of achieving unprecedented goals.”

To motivate people to enhance their performance and get over depression is possible if the support they need for day-to-day work is provided to them in abundance. They should not worry how their TA/DA advance will reach them and their advances, pay packet will be correct to their authorisation. Their store demands will be proceed with time bound delivery period. Dr. Kalam states, “The problem however, has been lack of work environment that stimulated and permitted them to give full experience to these drives (self actualisation etc). The Leader can contribute to a very high productivity level by providing the appropriate organisational structure and job design and by acknowledging and appreciating their hard work.”

9.3.4 Communication: Most of the time communication gets confused within conversation. In fact, they are distinctly different. A Leader may not be a good conversationalist but should be good communicator. A conversation full of pleasantries is most often devoid of any useful information, whereas communication is meant mainly for the exchange of information. It is very important to realise that communication is a two-way affair, which aims at passing on or receiving a specific information. One has to be tactful and never sugarcoat the bitter pill of facts. Communication must promote understanding. To come to an agreement with colleagues it is necessary to define the problems that exist and identifying the action necessary to solve them. Authentic communication is one of the most important tools skillfully used in managing the any programme. Dr. Kalam states, “The essence of our method of work was an emphasis on communication, particularly in the lateral direction, among the team and within the teams. In a way communication was my ‘mantra’ for managing this gigantic project (SLV). To get the best from my team members, I spoke
to them frequently on the goals and objectives of the organisation, emphasizing the importance of each member's specific contribution towards the realisation of these goals. At same time I tried to be receptive to every constructive idea emanating from my subordinates and to relay it in an appropriate form for critical examination and implementation. Somewhere I had written in my diary of that period,

“If you want to leave your foot prints on the sand of time,
Don't drag your feet.”

9.3.5 Project Leader: Mistakes can delay or prevent the proper achievement of the objectives of individuals and organisation, but a Leader can use errors as opportunities to promote innovation, and the development of new ideas. A Leader is not especially concerned with the mistake least of all pinning blame for it. His/ her general approach is that mistakes are inevitable but generally manageable. It is the handling of the cries and the consequence is that talent could often be revealed. Best way to prevent errors is to anticipate them. The Leader must generate leadership qualities in his/her team and inspire them through ideas and example.

Technology Leader’s another tool is knowledge. Knowledge is a tangible asset, quite often the most important tool in the work. The more up to date the knowledge you possess, the freer you are. Knowledge cannot be taken away from any one except by obsolescence. A Leader can only be free to lead his team if he/she keeps abreast of all that is happening around him/her in real time. To lead in a way, is to engage in continuing education. To be a successful Team Leader, one has to stay back after the din and clutter of a working day to emerge better equipped and ready to face the new day.

A Leader must develop passion for personal responsibility. The sovereign way to personal freedom is to help determine the forces that determine you. The historian Edith Hamilton wrote about ancient Greece,
“When the freedom they wished for most was freedom from responsibility, then Athens ceased to be free and was never free again”. The Leader must combat the forces that threaten to tame him/her.49

A Leader must have total commitment. Commitment is not just hard work, it is total involvement. Dr. Kalam50 talks about total commitment “Total commitment is a pivotal quality for those who want to reach the very top of their profession. To desire to work to optimum capacity leaves hardly any room for any other desire. Total commitment is the common denominator among all successful men and women. Are you refusing to see or do something because it confronts your belief system? Are you able to manage the stresses you encounter in your life? The difference between an energetic and a confused person is the difference in the way their minds handle their experiences. Man needs his difficulties because they are necessary for health. It is difficult to succeed and then to enjoy success without creating a positive emotional environment, within one body. All of us carry some sort of a super intelligence within us. Let it be stimulated to enable you to examine your deepest thoughts, desires and beliefs.

Once you have done this, charged yourself, as it was, with your commitment to your work - you also need good health and boundless energy. Climbing to the top demands strength, whether it is to the top of Mount Everest or to the top of your career. People are born with different energy reserves and the one who tires first and burns out easily will do well to reorganise his or her life at the earliest.

Big scientific projects are like mountains, which should be climbed with as little efforts as possible without desire. The reality of your own nature should determine your speed. If you become restless, speed up. If you become tense and high strung, slow down. You climb the mountain in equilibrium between restlessness and exhaustion. When each talk of your
project is not just a means to an end but or unique event in itself, then you are managing the show properly."^{27}

9.4 Technology Management & Technology Transfer

In India even today, the term technology, for most people, conjures up images of smoking steel mills or clanking machines. Our symbol of Technology must change before we can keep pace with changes in technology itself. One must not forget the technology feeds on itself. Technology makes more technology possible. In fact technological innovation consists of three stages linked together into self-reinforcing cycle. First there is the creative stage, with the blueprint of feasible idea. This is made real by its practical application, finally ending in its diffusion through society. The process is then complete; the loop is closed when the diffusion of technology embodying the new idea in turn helps generate new creative ideas. Today, all over world, the time gap between each of the steps in the cycle has been shortened. In India it is still in a slow process.

Technology, unlike science, is a group activity. It is not based on an individual intelligence, but the interacting of its roots in the Development Management models, which originated in the early sixties out of a conflict between harmony seeking and output oriented management structures. There are basically two types of management orientation: Primal, which values an economic employee, and rational, which values an organisational employee. Dr. Kalam says "My concept of management is woven around an employee who is a technology person, while the primal management school recognises people for their independence, and rational management acknowledges them for their dependability, I value them for their interdependence. Where as the primal manager champions independent enterprise and the rational manager serves cooperation. I moot interdependent joint ventures, getting the forces together, networking people, resources, time schedules, costs and so on."^{50}
The tree of technology management takes root only if there is the self-actualisation of needs, renewal, interdependence, and natural flow. The growth patterns are characteristics of the evolution process, which means that things move in a combination of slow change and sudden transformation; each transformation causes either a leap into a new, more complex level or a devastating crash to some earlier level; dominant models reset certain spark of success when they turn troublesome and the rate of change always accelerates.

The stem of the tree is the molecular structure in which all action are formative, all policies are normative and all decisions are integrative. The branches of this tree are resources, assets, operations, and products, which are nourished by the stem though a continuous performance evaluation and corrective update.

This tree of technology management, if carefully tended, bears the fruits of an adaptive infrastructure; technology empowering of the institutions, the generation of skill among people, and finally self-reliance of the nation and improvement is the quality of life of its citizens.

Dr. Kalam says, “The technology management philosophy of IGMDP is not exclusive to missile development. It represents the national urge to succeed and an awareness that the world is never again to be directed by muscle or money power. In fact both these powers will flow through technological excellence. Only nations with technological superiority will enjoy freedom and sovereignty. Technology respect only technology. Technology has not grown on individual intelligence, but by intelligences interacting and ceaselessly influencing one another. And that is what I tried to make IGMDP: a 78 strong Indian family which also makes missile systems.”
Chapter 9

9.5 Leadership Traits

Leader must have traits like enthusiasm, judgment and knowledge. Leadership Traits are human qualities that are of great value for Leader. Possession of these traits simplifies the task of applying the Leadership principles, and assists greatly in winning the confidence, respect and cooperation of the other men. It should however, be recognised that the Leader's goal, the personalities of the people with whom he is working and the circumstances of the specific situation, all decide which trait is to be emphasised. Traits that are of paramount importance to a Leader and personality aspects of Dr. Kalam in view of these traits are described below.

9.5.1 Humility

One of the greatest assets that gave Dr. Kalam an edge over others is humility. He is known as saint Scientist. Dr. Kalam Says “Whenever human beings find themselves alone, as a natural reaction, they start looking for company. Whenever they are in trouble, they look to someone to help them. Whenever they reach an impasse, they look to someone to show them the way out. Every recurrent anguish, longing and desire finds its own special helper”. He always helped his colleagues, sub-ordinates and any one who came to him for the help. One incident is quoted to show his humility - Dr. Haridwar Singh, Director, High Energy Material Research Laboratory, Pune needed liver transplant that was required to be done in UK and the necessary sanction of Rs. 60 lakhs, in foreign exchange, was difficult to obtain. Dr. Kalam had by then left DRDO and had become The Principal Scientific Adviser to Govt. of India in the rank of Cabinet Minister. Some of Dr. Haridwar Singh’s friends went to Dr. Kalam for help. He immediately took up the case, went to see Health Minister and within a week got the amount sanctioned. Any one else in his place would have said, “I am no more head of DRDO, please approach SA to RM for the help.” It was not easy to get the
sanction, as it had to pass through many obstacles and he personally intervened to overcome all the obstacles to get the sanction. His humility brought him many friends, to describe appropriately.

9.5.2 Team Building

Dr. Kalam’s first Project ‘NANDI’ design of hovercraft was successful and success was demonstrated. But it did not see the light of the day due to controversies. He was disappointed and disillusioned but in a very short time he came out of it. Dr. Kalam writes, “What makes life in Indian Organisations difficult is the wide-spread prevalence of contemptuous pride. It stops us from listening to our juniors, sub-ordinates and people down the line. The line between discipline and vindictiveness is very fine, but it has to be drawn. Unfortunately the only line prominently drawn in our country today, is one between the ‘Heroes and Zeroes’. On one side are few hundred ‘Heroes’ keeping one billion people down on the other side. This situation has to be changed.”

Dr. Kalam often quotes from Khalil Gibran and finds his words full of wisdom “Bread baked without love is a bitter bread that feeds, but helps a man's hunger.” Those who cannot work with their heart achieve but a hollow, half-hearted success that breeds bitterness around. What Dr. Kalam did was to inculcate in his team a sense of belonging to the mission and work with heart and soul in perfect unison. He did not make Heroes or Zeroes but a team with total commitment.

Dr. Kalam took many of his traits from Prof. Sarabhai and wrote about him in these words -

“I found him making things look more positive than actually were, and then charming us by his almost magical power of persuasion. When we were on drawing board he would bring someone from the developed world for a technical collaboration. That was his subtle way of challenging each one of
us to stretch our capabilities. At the same time, even if we failed to meet certain objective, he would praise whatever we had accomplished". A leader is not better than his people and depends upon their commitment and participation in the project as full partners. One can find leaders in a group of people, one must have a desire to nurture them and not take them as threat. In order to nurture sometime, one has to back a young experimenter in preference to an established expert.\textsuperscript{127}

Mistakes can delay or prevent the proper achievement of the objectives of individuals and organisations, but a visionary like Prof. Sarabhai and Dr. Kalam can use errors as opportunities to promote innovation, develop new ideas and correct the system. Dr. Kalam puts his team forward for the presentation of the project work in every review before VIPs. This generate leadership, qualities in the team and provides inspiration. Dr. Kalam writes, "I visualized my team as a group in which each member worked to enrich the others in the team and experience the enjoyment of working together." The team members must celebrate their success together - a sort of mutual appreciation club and put their minds together to come out of failures.\textsuperscript{127}

9.5.3 Personal Responsibility and Integrity

Passion for personal responsibility is one of most required traits in a leader. This generates confidence in the leader and results are team loyalty to mission and its leader. The sovereign way to personal freedom is to help determine the forces that determine you, be active, take a responsibility, work for the things one believe in Leader. A leader never pretends to know more than what he does. Leaders lead with firm but fair hand. Dr. Kalam took failures as the failure of the leader and success as success of the team.

Performance dimensions are factors that lead to creation. They go beyond competencies such as skills and knowledge of the individual. They include attitudes, values and character traits. A leader must be above board.
He/She should be an example, not only in success but also in failure. When SLV-3 failed due to the second stage going out of control, Dr. Kalam was disappointed. He said “I had hardly had any sleep in the past week. Completely drained - mentally as well physically, I went straight to my room and slumped to my bed ... A gentle touch on my shoulder woke me up. It was late in the afternoon. I saw Dr. Brahm Prakash, (the then Director of ISRO’s Trivandrum Centre) sitting by my bedside. ‘What about going for lunch?’, he asked. I was deeply touched by his affection and concern... He had waited all the time for me to get up and have lunch with him. I was sad, but not in solitude. The company of Dr. Brahm Prakash filled me with a new confidence. He made light conversation while eating the meal, carefully avoiding the SLV-3, but gently providing me solace.” Dr. Kalam repeated this act, which he learned from his mentor and the great technologist Dr. Brahm Prakash on many occasions during the initial failure of PRITHVI and other missile failures by providing solace to the Project Leaders and their teams. Your team that stands by you and gives emotional support, encouragement guidance during the failure is the sign of an excellent healthy system.

9.5.4 Participative Decisions

A logical thought process is essential for solving a problem or making a plan. A leader must discuss with his team to take their vital inputs, make a ‘free and frank’ discussion. Thereafter the leader's intention and his proposed method of execution must be made perfectly clear to all taking part. He must therefore, acquire the ability to make decisions promptly and announce concisely and clearly. The leader's power of decision results from his ability to remain imperturbable in a crisis. His greatest assets are the ability to act normally in abnormal conditions. Ronald Fischer said, ‘The sweetness we taste in a piece of sugar is neither a property of the sugar nor a property of
ourselves. We are producing the experience of sweetness is the process of interacting with the sugar.’ Dr. Kalam writes, “In order to accelerate the pace of R&D activities of DRDL, it was imperative that decisions on vital scientific, technical and technological problem be taken expeditiously. Throughout my career I had zealously pursued openness in scientific matters. I had seen from very close quarters the decay and disintegration that go with the management through close door consultation and manipulation. The concept of management by participation was evoked and earnest efforts were made to involve middle level scientist and engineers in the management activities of the DRDL.” Dr. Kalam consulted at various forums, evaluated each input and finally conveyed his decision that had merit and implemented it to success.126

9.5.5 Initiative and Creation of Positive Work Environment

The launch of the IGMDP was like a bright flash on the Indian scientific firmament. What Dr. Kalam achieved in just thirteen months, after he took over as Director, DRDL in June 1982, was the sanction of the Government for a Programme of unprecedented magnitude. It was Dr. Kalam’s initiative that made it happen. He had a moral management style. He used to have morning meetings with his management team at various work centres. Any one could come to a morning meeting with a problem and one was certain that the problem would be solved. He constituted management council that met once a week to tackle technical, scientific or managerial problems, of which all group heads were members. He also constituted a technology board with experts from higher educational institutions and industries in the public and private sectors. It was the forum to get the best technological advice for the IGMDP. The three-tier review system not only resulted in minimal failures but also helped in building confidence of the entire team and the users.125
His major initiative was to make finance as part of the project and review system. Finance became the partner; Users were the part of the Project Management Committee, Programme Management Committee and Guided Missile Programme Management Committee. This resulted in sharing of responsibility and corrective action in dynamic mode. Dr. Kalam writes “What you imagine, is what will transpire, what you believe is what you will achieve ... We were excited and encouraged to see the best professionals in the country getting attracted towards IGMDP. Who would not want to be associated with a winner?” What Dr. Kalam achieved simultaneously was goal setting, positive thinking, visualising and believing. Dr. Kalam used to keep work environment lively with a good blend of the experience of the elder scientists and with the skills of their younger colleagues. The mutual dependence between the young and the veterans had created a very productive and positive work culture at DRDL.122

Most people possess a strong inner drive for growth, competence and self-actualisation. The problem, however, had been the lack of a work environment that stimulated and permitted them to give full expression to these drives. A Leader can contribute to high productivity level by providing the appropriate organisational structure and job design. He/she can further improve the productivity by giving due recognition and appreciation of the hard work of the team.

The motivational inventory of a leader is made up of three types of understanding, which are:

- Needs that people expect to satisfy in their jobs,
- Effect that job design has on motivation and
- Positive reinforcement in influencing people's behaviors.
9.5.6 Selflessness

The most appreciated quality of Dr. Kalam's Leadership was that he never put himself before his mission and the people working for him. I will quote from his Autobiography 'Wings of Fire.'

"I have acquired nothing, built nothing, possess nothing, no family, sons, daughters"

"I am a well in this great land
Looking at its millions of boys and girls
To draw from me
The inexhaustible divinity
And spread His grace everywhere
As does the water drawn from a well."

"I do not wish to set myself as an example to others, but I believe that a few souls may draw inspiration and come to balance that ultimate satisfaction which can only be found in the life of the spirit."

Bharat Ratna Dr. Avul Pakir Jainulabdeen Abdul Kalam demonstrated the great potential for dynamism and innovation that existed in a seemingly defeated research establishment. He has become a household name in India. To describe his Leadership in precise terms is difficult, but an attempt has been made to summarize his qualities that make him a great leader.

9.6 Methods of Dr. Kalam to Nurture Young Talent

• *Seek knowledge* through instruction and reading, research and study. When a scientist joined his lab, he/she was asked to submit a one-page resume giving the area of interest. He then interviewed the scientist and then assigned the work relevant to the mission according to his/her interest. He also guided in the routes of study. For first year he monitored the Scientist’s work on a quarterly basis.\(^\text{123}\)

• *Seek out and Foster Association with a Capable Leader:* All young scientists were put in care of a senior scientist as a mentor to be groomed and
learn from. The senior scientist was responsible for the growth and conduct of the young scientists. The senior scientist was also assessed this function on his part.

- **Broaden your Field of Knowledge:** Dr. Kalam encouraged his Scientists to attend continuous education courses and also to undergo higher educational training viz. Post Graduate diplomas, M.Tech, PhD Programmes etc. including visits to other scientific organisations.

- **Seek Opportunity to Apply Knowledge.** During the review process Dr. Kalam used to encourage young scientists to speak out. He valued their suggestions. This encouraged the young scientists to apply their knowledge.

- **Seek Team Spirit:** He always valued team spirit and made sure by his interaction with young scientists that they become productive, creative and contributing members of the team. He inculcated the feeling in the scientists that they were wanted.124

9.7 Dr. Kalam's Leadership Principles - A to Z

A. Created an atmosphere that he was approachable and friendly.

B. Developed an intimate knowledge and understanding of his subordinate through personal contacts and available information.

C. Created excellent work environment and ambience so that one could give his/her best.

D. Provide all assistance to the families of his Team to make them comfortable and thus created a feeling that they were part of his mission, which resulted in a total commitment from the scientists.
E. Determined the mental attitude of his subordinates by frequent informal visits and by using fully all available sources of information, and took corrective action to prevent potential problem before its occurrence.

F. Was fair, consistent and an impersonal administrator of Justice.

G. Punished a person, only if absolutely necessary, with dignity and with humane understanding. He never awarded degrading punishment and never punished a group for the fault of an individual. He always gave a feeling that punishment was temporary and that an improvement was expected of the individual being disciplined.

H. Made sure that privileges were fair and based on equitable distribution.

I. Took genuine interest in his subordinates and also always had the human touch.

J. Felt that to commit a mistake is human and treated them as such. He believed in correcting the system rather than punishing an individual.

K. Encouraged risk taking by developing confidence that resulted in high productivity.

L. Always explained why any particular task should be accomplished and how methods to do it. Shared information with his subordinates.

M. Established a fair and three-tier review system. Always believed that, the best way to get rid of failures is to predict them before they occurred.

N. Believed in the growth of his subordinates by providing opportunities of promotion and mobility.

O. Provided a forum to sort out day-to-day problems.

P. He was the ‘Master of his emotions’ and would never subordinate himself to intemperate bursts of anger or to periods of depression.

Q. Always maintained an optimistic outlook.

R. Always rewarded those who promoted the spirit of initiative.
S. He vigorously resisted the temptation of being partial to the subordinates who had rendered loyal and superior service over a period of time, though it was difficult.

T. Was always with his team at the time of failures and crisis. Shared their joy in their successes.

U. He had a love for work, which he called “Flow of Joy” and always paid attention to detail. His example was contagious to his team and all responded with enthusiasm.

V. Had the seventh sense of making sound and timely decision.

W. Was quick to recognise accomplishments of his subordinates when they demonstrated initiative and resourcefulness.

X. He was a true judge of man. He knew the capabilities of his subordinates and assigned tasks according to their capabilities.

Y. When a mistake was made, he did not try to find a scapegoat but always took action to correct the system and procedures.

Z. He accepted, justified criticism of his decisions and actions.\textsuperscript{122,123,124,125,126}

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