INDIA AT 60
THE PATH AHEAD
As India celebrates its sixtieth birthday, it is an honour for us to bring out this special edition "India at Sixty: The Path Ahead", which brings together three important thought pieces by Dr. Partha S Ghosh. A global citizen with a deep sense of commitment to equitable wealth creation, Dr. Partha Ghosh, over the last 25 years, has applied his innovative and strategic mind to India's problems, both at the macro economic and micro economic level with relentless enthusiasm.

In view of the deep sense of commitment we cherish towards India's development, we are indeed glad to pull together Dr. Partha Ghosh's views on the future of India. The thought pieces together provide a comprehensive set of hints on the nature of programs that Indian leaders – from academia, business & industry, government institutions and political parties – should develop in partnership with each other.

EPC Age is committed to play its role in the economic development of the nation by enabling a consensus of ideas and symbiosis of creative thinking by bringing together new thinking and emerging trends on communication and media, and engineering and construction professions. We hope you find this special edition will stimulate forward looking actions within our readership.

THE EDITOR
WHOSE LIFE IS IT ANYWAY?

The long and short of development challenges

It is indeed a great privilege and a rare honor for me to share a few of my thoughts on nation building, particularly in view of the role technology could play in the development of India, with the assembly of the most brilliant minds of the country. Thank you for the opportunity.

Before I begin, may we salute the freedom fighters, the martyrs, who were executed in pre-independence India in the Hijli Jail which is located on the outskirts of Kharagpur, a place where the beginning of the IIT system is rooted. May we also salute the three individuals who played a dynamic role in creation of the first IIT: Prime Minister Jawaharlal Nehru, Bidhan Chandra Ray, the first Chief Minister of West Bengal, and Professor J.C. Ghosh, the prime mover behind the development of the IIT system.

As we all know, the IITs were created as a special educational initiative to draw out the best talents of the nation to address the issues of socio-economic development from a scientific and technological perspective. A perspective which will celebrate the courage of the millions of people who lost their lives for a free Indian subcontinent and which will take forward the vision of the founding fathers of post independent India.

The central question we have to ask today in a special gathering like this is, “have the IITs been able to play this important role in utilizing the power of technology as a social equalizer?” If yes, “what do we do to sustain it?” If not, “how do we repurpose these flagship institutions so that the IITs and the products from the IITs could play an appropriate role?” The answer to the first question is obvious,
which suggests that we must find a more effective role for the IIT system so that technology can become relevant to the common person, both in India and in other developing regions of the world.

Before I take you through my presentation, I would like to share with you some of my very personal observations and beliefs on nation building – not with the desire to prescribe solutions, but with the objective to provoke an honest debate:

* No country ever in history could claim success without achieving a fair degree of equity in its wealth creation system.
* No institution can claim success until it has successfully addressed the problems of the nation to which it belongs.
* No individual can claim success until his/her deeds make a fundamental difference to the lives of common people.

If we view the IITs in the above context, we have very little to celebrate and a lot to ponder on. It is clearly a time to reflect. I hope this is indeed the fundamental purpose of such a mega conference.

When you read the essential objectives of the first five-year plan (when IIT Kharagpur was established), and then read the objectives of the subsequent plans, you will notice that "Removal of Poverty" has been at the heart of all the ten plans. Yet, poverty has grown in size and the socio-economic divide between rich and poor has increased. In fact, as India writes its 11th Plan, 60 percent of people in the commercial capital – Mumbai – live and dream in the slums, and the suicide rate of framers is on the rise in the most prosperous states of the nation. Therefore, before we dream, for example, of how to make Mumbai one of the financial centers of the world, we have to work on how the hopes and dreams of people on the sidelines can be activated, sustained, and realized. That is one of the principal issues if not the only one toward which the range of technologies available today should be directed.

In fact, since the 1950s when the population of India was only 350 million, our problems have only become more complex and gained in magnitude:

* Divide between rich and poor has increased.
* Ecological balance has deteriorated.
* Ground water levels have dropped dramatically.
* Balance of trade along with budget deficit has continued to worsen.
* Indiscipline has deepened.
* Fragmentation of political/economic makeup of the nation has increased.

* Faith in our ancient values and philosophy has been masked by Bollywood's and Hollywood's culture of instant gratification in the name of modernism.
* Healthcare for thee poor is nonexistent.
* Primary education system is yet to be developed

It is easy to observe all of these problems around us; but somehow, our direction of development, particularly in the last 20 years, has not engaged Indian leadership with the real issues, while indeed the "feel good" factor has been over celebrated because of a few individual, corporate, or personal achievements. The challenge now is how to use this "feel good" mood for the advantage of the other 85 percent of India. It will require a Herculean effort, as the Indian subcontinent has never in the last 2,000 years purpose the thinking of intellectuals and the economic activities of the privileged in the service of the grass roots. We have created great monuments, centers of excellence, even great philosophical documents, but none of these achievements have been able to touch and make a difference in the livelihoods of the common person. In that sense, I hope this Pan IIT session will be a historic one, as it has the potential to steer our nation in a direction which is strategic for all in the subcontinent, so that each individual becomes an active member of a national movement, which I will term the "Renaissance Movement."

Given this backdrop, my presentation entitled "The Long & Short of Development Challenges: Whose Life Is It Anyway?" will focus on three points:

1. Addressing the Fundamentals: Time to Choose?
2. The Call for a New Paradigm: Innovation versus Speculation?
3. Ensuring a Meaningful Journey: The 5Es, the Eight Programs, and the Boston Pledge Movement.

1. Addressing the Fundamentals: Time to Choose?
Before we are in a position to discuss how we must chart our path forward, it is important to briefly review:

(i) What has India achieved?
(ii) What assets, in turn, has it built which the nation could now leverage?
(iii) What are the most fundamental issues we must address as we move forward?

When a historian 100 years from now will take a peep at the first 60 years of post independent India, he/she will perhaps describe this era as a
period of socio-economic experiments. Indeed, the adoption of the mixed economy paradigm with a bias toward a socialistic planned economic model was an effort to address the issue of equity without losing perhaps the economic dynamism that the business houses could offer to the economy.

In the process, however, the protected business houses lost their sharpness and never developed the habit of thinking in terms of global competitiveness. The mixed economy, instead of celebrating the positive aspects of socialistic and capitalistic instincts, picked up the negative aspects of each. The resulting economic system essentially suffered from an unintended gridlock corroded by corruption and negative politics and infected by "zero sum" social values.

Fortunately, the political leadership in the mid eighties began to think of a more open economy. In the absence of a strategic framework, however, early liberalization initiatives created the initial economic jolts resulting in the near bankruptcy of the country in the early nineties. The opening up of a closed system which served to fuel wrong economic and governance habits led to instant opportunistic moves by a few for quick economic gains, undermining the overall health of the economy. Obviously, such a dynamic could not be sustained for long.

In response, the early nineties triggered another era of modernization schemes which, along with the digitization of the global economy and the Y2K challenge provided India’s knowledge-based economy a respectful global stature. Furthermore, as the first wave of graduates from the IITs and other universities (who moved to the US and other advanced nations) assumed leadership positions in corporate and government organizations, they indeed helped to put India on the global stage.

While much of all that has happened to India is not because of a master strategic plan, but because of the play of unintended consequences and convergence of technologies. This dynamics has indeed helped India: (i) overcome certain basic barriers of socio-economic development by legitimizing and institutionalizing the political process, (ii) strengthen the nation’s balance sheet, as exhibited by the increase in the nation’s foreign exchange reserves, and most importantly (iii) enable a better understanding of India’s relative position vis-à-vis other nations.

We must view these developments, which have led to India’s enhanced global credibility and sense of optimism, with a positive perspective. We must, however, remain humble in addressing the issues of development, particularly as the widening of the gap between rich and poor is not slowing, but actually accelerating. Moving forward, I will urge that in the next 25 years, we must commit ourselves to one strategic theme of "Becoming an Enterprising Civil Society" so that each one of the 1.2 billion citizens of India and the 1.7 billion people residing in the subcontinent will be empowered to play an enterprising role. In the process, as Exhibit 1 (below) indicates, we must focus on improving social equity, strengthening our income statement, and nurturing a sustainable economic model.

Exhibit 2 (on the next page) illustrates the current landscape of India’s fundamental economic challenges, particularly when viewed from the perspective of financial governance of the nation. The combination of an increasing appetite to consume and a continuing lag in productivity has only weakened the nation’s income statement. During the first half of 2006, India bought goods worth $35 billion more than it sold, and the trend has been rapidly worsening since the early nineties.

Liberalization and globalization in the absence of a clear country strategy (which I have been trying to promote since the mid eighties) stimulate economic instincts which are short-term and enable speedier wealth creation for those who can take advantage of global differentials and speculative forces due to market inefficiencies. In the absence of creative incentives which shape market instincts, it is significantly more attractive, from the free market perspective, for example to import cheaper products from China and oil and gas from hydrocarbon-rich countries, than it is to address the issues of...
competitiveness and development of an energy and power sector which is less dependent on imported hydrocarbons. In contrast, for example, Brazil’s commitment to an ethanol economy with a strategic perspective during the energy crises of the seventies has indeed paid off. Today, 80 percent of Brazilian cars are fueled by ethanol produced from sugar cane, and in turn, the agro sector of the nation has become a model worth emulating for the advanced nations.

**Energy challenge**

Among the nations that are rapidly developing, India is the only country which has a negative trade balance as well as a negative energy balance. Countries like Brazil, China, and South Korea—let alone the developed economies like Japan, Germany, France, and Italy that are all net importers of hydrocarbon resources—enjoy a positive trade balance (income statement) to pay for increasing hydrocarbon prices as well as bet on international oil and gas assets on their own terms. (Exhibit 3)

Particularly impressive is how China has built a significant portfolio of international oil and gas assets in the last decade by utilizing its manufacturing muscle (providing it with an increasing trade surplus). China now has a robust pipeline of multi-billion dollar oil and gas projects in hydrocarbon-rich countries including Iran, Nigeria, and Venezuela, thereby ensuring the long-term security of the country. In contrast, perhaps because of how India’s bureaucratic processes work, when a portfolio of projects in Egypt was presented to the highest level of India’s energy sector, for some reason, Indian Energy leadership did not pursue the projects. India needs to wake up and strategically engage with a global energy landscape in tune with a major push to improve its income statement. India’s energy leadership team must find innovative ways to utilize the nation’s own natural resources for the rapid development of an integrated renewable energy strategy.

**Power Sector Challenge**

Furthermore, we must realize that even if India’s average electricity consumption is only 20% of the per capita power consumption of an average British citizen, India will need to add as much power generation capacity as it has installed in the last 100 years. Naturally this is an extremely serious challenge as, with a negative income statement (continued trade deficit), India could finance such a large-scale power solution only if it could harness large-scale capital infusion from global capital markets; with a poor income statement, such capital will be very expensive, which will make electricity
expensive. Naturally, such expensive electricity will be out of reach of the rural sector, unless of course the sector is heavily subsidized. That too is difficult, if not impossible, when the trade and budget deficits are serious. Accordingly, India indeed needs a more innovative strategy to drive the power sector with an alternative energy-power paradigm. In view of new micro technologies in the pipeline coupled with its programs in renewable resources, India urgently requires an accelerated energy-power strategy which is transformational, yet practical, and which can attract lower-cost capital so that the ultimate end users—the farmers with $2/day income—could access electric power without harboring thoughts of suicide.

**Agro Sector Development**

With a population density of close to 400 people/sq. km, land is very dear to India, as it is to Japan (which has a similar population density). However, the agricultural productivity of India today is only one-third that of Japan and half that of China. (Exhibit 4)

Furthermore, in the last five years, as India began rallying around ideas like IT parks, biotech parks, and SEZs, its agricultural productivity has stagnated, and for certain crops it has even declined. In other words, in a sector which provides for the livelihoods of 70 to 75 percent of the population, we are not only less productive but also content with a trend which is unsustainable. India needs an agricultural strategy that ties in with its fundamental challenges as they relate to equity, exports, energy, ecology, and education—what I term the “5Es of Development.”

**Human Development Index**

Exhibits 5 and 6(below) show how India is positioned relative to a few select economies along the six vectors leading to the composite metric Human Development Index, which essentially define the quality and preparedness of the common person to be an active participant in the socio-economic development of a nation. Indeed, relative to the US, Japan, and Germany (Exhibit 5) and even to Brazil and China (Exhibit 6), India has a long way to go. In order to move along the vectors, India will need to develop extremely innovative strategies, distinctive to each region of the nation, with particular focus on cultivating morality, ethics and values which could bring out the goodness of our society.

**India relative to select Emerging Nations**

It is indeed a shame that a nation which has been the birthplace of many spiritual leaders ranks close to the top relative to other nations when it comes to corruption. The IITs, as dominant centers of learning, must begin a national movement to reduce corruption, because no nation suffering from corruption related “economic and intellectual leakage” has ever addressed the fundamental requirements of progress, namely, health and nutrition, basic hygiene, access to clean water, and education, let alone the issues related to equity and energy.
Moving forward, in view of the emerging challenges (internal and external), any nation in the state of development that India is now in will need to ask a difficult question: Should the nation extend the momentum of the economic instincts of the 20th century and speculate on how the end of life cycles of the existing economic and business models play out? Or should we, with a fresh mind, evolve a range of strategic responses in creating a paradigm which is forward looking?

For a country like India, given its rich heritage and complex socio-economic system and, most importantly, being at a very early stage on the path to economic prosperity, it must evolve an economic model which is (i) distinctively its own, (ii) "future-in" in contrast to "past-out," and (iii) oriented toward leveraging emerging sciences and technologies (nano, bio, opto, and info, to name a few) to address its own grass root problems.

India's Strategic Advantage

We have to realize that a "fresh economic paradigm" could enable India to develop a strategic advantage along three fundamental dimensions:

(1) **Time Advantage:** There are two types of "Time Advantage" that India enjoys which it must strategically utilize to take a giant leap forward in its economic development. At the grass root level, the issues related to access to clean water, renewable energy, and a sustainable ecosystem are soon going to be just as serious in advanced economies as well, perhaps in the next 20 to 30 years. If India, through public-private partnerships (PPPs), could develop sustainable solutions to these challenges, Indian business and industry will have lost to offer in the future global market. Furthermore, countries like India which are not yet as much affected by 20th century economic habits will find it easier to disengage from business models now than later, only if they have the courage to "bet on the future" with new resolve.

(2) **Diversity Advantage:** The diversity of India's ecosystem, faiths, landscape, and bioscape provides India with the advantage of dealing with the forces of convergence better than many other nations, as long as the country evolves a delivery system which on the one hand is universal and on the other has the ability to customize value propositions for different segments of society. Airlines in India are excellent examples of how, even on short flights, different cuisines-Western, Indian, Non-vegetarian, and vegetarian—are elegantly served. Could this spirit be replayed across the different segments of Indian society and extended to world markets?

(3) **Wisdom Advantage:** As the world becomes increasingly knowledge intensive, the volatility of the economic system and business models will only increase. In order to deal with such volatility with grace and dignity, the teachings of the Vedas are of more significance now than ever before. If the IITs and the Indian education system could build on the lessons from the Vedas with their conventional curricula, India's ability to offer a more enlightened education system to the world would perhaps provide the most significant strategic advantage, similar to what the US had enjoyed all through the 20th century. If India can draw the brightest of minds from all over the world to participate in an education system which will prepare and stimulate minds to harness the turbulent power of the emerging knowledge explosion, India will indeed be able to create a global dynamic from
which the rest of the world can draw inspiration. Accordingly, India's 11th Plan must base its approach on these three fundamental strategic advantages at the core of its planning process; indeed, if the 11th Plan could be a fundamental departure from the past, with significant emphasis on innovation, we could chart a new path for India, which would provide answers to difficult issues that the world is faced with, or will increasingly face. Anything short of that will actually get India drawn further into the speculation game, where the economically privileged will bet their resources for instant economic gains while distancing themselves from the other 80 percent whose hard toil still makes our fragile infrastructure work.

I believe a strategic approach will need to be urgently developed. It must be holistic and must integrate the 5Es of equity, education, energy, ecology, and exports (an ultimate measure of efficiency) toward a common vision which all the political parties, all the states of the nation, and SAARC in general could relate to and commit to with uncompromising dedication.

Exhibit 7 (below) underscores how the issues related to each of the Es will need to be addressed in a holistic fashion in synchronization with each other. Now I will briefly share with you some early thoughts on the 5Es.

**EQUITY:** We will need to identify non-conventional approaches to create a socio-economic dynamic which is fundamentally bottom-up. We will need to find ways to mobilize the lowest echelons of our socio-economic system and draw on the lessons of Grameen Bank in Bangladesh to empower the powerless. We have to move away from terms like “Garibi Hatao” or “Rural Employment Scheme” which by definition suggest that favors in the form of “handouts” will come from the top. Social scientists must find ways to cultivate confidence in people at the grass roots to trigger an enterprising spirit. Such spirit should be guided toward resolving issues related to nutrition, health, housing, access to clean water, power generation through non-conventional routes, and education.

**Education:** We must realize that the design of the education system in any country should be geared to address the issues that the country is faced with. Unfortunately, because of the establishment of the British Empire, India’s education system was set up to essentially serve the needs of the empire in India and in the colonies. The post-independence education system has been essentially an extension of the earlier system, further enhanced in its sophistication by the influence of science and technology education in the US. In the process, India has been successful in creating one India which is extremely comfortable in the Western economic setup, distant from the challenges of survival of the other India (which perhaps accounts for 75 percent of the population). In contrast the other India which is devoid of any respectable educational infrastructure, is naturally advantaged.

Worldwide, more progressive nations are examining the suitability of their education system in view of (i) how the nature of the challenges facing the planet might influence the advance of their societies and civilization in general, and (ii) how the convergence of new technologies blurring the
boundaries between different streams of inquiry in both science and technology might require more resiliency in our intellectual make up. For a country like India, where the challenges related to ecology, energy, and equity are more acute, and where the education system has not been able to offer the common person the essentials of human dignity, its leadership must review the nation’s education system from the kindergarten level to the university level so that we prepare our graduates to be passionate problem solvers in addressing issues of development. Such a design must be a bottom-up process with a holistic view of the development challenges that the nation has to face.

**Energy:** It is clear that any emerging nation with limited or no hydrocarbon resources and with a population base of more than 50 million will not be able to follow the energy model that North America, Western Europe, and Japan-the TRIAD-have followed over much of the 20th century. We do not have the hydrocarbon resources nor will the environment allow us to load the atmosphere with more carbon. India’s per capita energy consumption is still low. It has a strategic advantage of having significantly less momentum of the energy-power model that was developed during the 20th century. India, and in fact the Indian subcontinent, instead of blindly following the conventional energy model, must evolve a fundamentally different paradigm which satisfies five basic requirements: (i) renewable source and less dependence on imported hydrocarbon, (ii) limited CO2 emission, (iii) distributed power generation to reduce transmission losses and enable faster development and easier governance, (iv) multiplicity of supply sources, and (v) ecological balance along all possible dimensions.

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**Exports:** Considering the stage of economic development that India is now in, it must find ways to boost its exports three- to four-fold in the next five to seven years; after all, we must realize that relative competitiveness, in turn a positive trade balance, is a measure of a nation’s economic power. Over the years, I have been trying to promote a strategic framework which will enable the development of a portfolio of industries which will be the locomotives of economic development. Exhibit 8 shows how the framework helps to categorize different industries into four strategic quadrants, each requiring specific policy inputs and infrastructure supports so that the market mechanisms can be guided toward a higher-level national purpose.

**Ecology:** Because of both the high population density and biodiversity that India enjoys, India’s socio-economic strategy should also be driven by its ecology strategy. Both at the central and state levels, India must adopt a new term called the “Ecoindex” which should indicate how well the nation is managing its natural capital. Such an index should be a composite of (i) forestation, (ii) agro productivity, (iii) surface water utilization, (iv) number of biological species, (v) conversion rate of deserts and arid areas to green areas, (vi) decline in CO2 emission, and (vii) drop in particulates created by industry.

The strategy to improve upon the Ecoindex should lead to economic processes which will drive public-partner cooperation. There are indeed several initiatives taken up by countries like Brazil, Israel, and Japan which India must learn from. In fact, if India could evolve a agro-based economic revolution to create large-scale agro complexes which could produce a full range of chemicals and cosmetics, fibers and foods, and pharmaceuticals and polymers, we could trigger a process which would address the issues of energy and equity as well.

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**Exhibit 8**

A FRAMEWORK FOR STRATEGIC GUIDANCE OF NATION’S INDUSTRIES

**Strategic Grid to Classify Industries**

A strategic grid will help to classify different industries into different economic roles requiring different policy and infrastructure supports.
It is my hope that the strategic issues related to the 5Es and the inter-relationships between them will be addressed with full vigor and commitment. Institutions like the IITs and the IIT alumni in particular must find ways to reconfigure each of those locomotives as nano, bio, opto and info technologies are applied. Research in these areas will need to be structured in such a way that India can leap ahead, while ensuring that the 5E requirements are fully satisfied.

If India could indeed get organized to launch a series of focused initiatives which are geared toward the 5Es, it would not only be able to create an economic model which retains a large percentage of the population in the rural sector but also lead the agro-cell-based economic movement which could fundamentally advance new thinking as to how world economies might be organized in the future. Exhibit 9 shows how over the last 350 years, the three S curves of development, beginning with the steam engine, then the internal combustion engine, and then the information technologies, drove long eras of economic development. During each era, the world witnessed the urbanization of its population, reaching a point when cities are becoming choke points. Now India has an opportunity to de-urbanize economic development through a distributed/decentralized economic development model where every village and every small town can become a center of economic excellence and the fundamental building blocks of the future economic paradigm are indeed agro based.

2. Ensuring a Meaningful Journey Forward: Agreeing on the Agenda

In view of what we have discussed thus far, the big question is “What could the IITians and the IITs do to begin the new journey with a new resolve?”

Let me briefly elaborate on each of the programs:

(1) Repurpose education systems (bottom-up design):

IIT alumni could put together a task force to work with the Education Ministry to define and implement a workable primary education system which would ensure that every individual not only spends at least 7 to 10 years in the schooling system in becoming an effective and enterprising citizen of the country but also develops confidence in a wide range of skill sets. We must think of a multi-stream education system depending upon the aptitudes of students, as they become visible in the first 3-5 years of schooling. The focus should be on (i) “skill” and “will” building, (ii) cultivating civic sense, and most importantly (iii) ensuring that everyone by the age of 16 develops knowledge of India’s developmental challenges.

In the same spirit, secondary and university education should help students develop more passion toward nation building. A significantly higher level of emphasis should be placed on integrating liberal arts with science and technology education so that Indian universities could cultivate more intellectual fluency and enable resilience of the mind. Furthermore, IIT programs particularly...
need to be organized so that each graduate could engage with three different tiers of opportunities/challenges:

(i) Tera-scale issues related to ecology, infrastructure, healthcare, logistics, and transportation.

(ii) Conventional-scale issues with significantly more emphasis on the design of circular rather than linear economic models to enable the development of conservation-centric systems.

(iii) Nano-scale issues to ensure surface properties of materials and biological systems are effectively utilized in developing cost effective solutions for a more sustainable and equitable future.

Exhibit 11 shows the nature of issues at 109 to 10-9 levels that future students must address. The university education system should be accordingly designed to help future students engage with multi-scale issues with confidence and intellectual resilience.

(2) Realign IIT curriculum so that it can switch from extension of 19th century sciences to 21st century problem solving. Given the credibility that the IITs have earned and the stage of development that the IITs are in at present, the education system should be fundamentally renewed from "Science Led Engineering" to "Solutions Required Engineering." Centers of innovative excellence should be repurposed as integrators of conventional engineering and scientific disciplines. For example, the Centers could be organized around Ecological Engineering, Energy Engineering, Transportation and Logistics Engineering, Healthcare Engineering, Water Management Engineering, Conservation and Recycling Engineering, Media and Communications Engineering, Life Sciences Engineering, and Idealism Engineering. In order to ensure effective use of current scientific knowledge, each of these disciplines needs to be developed along three scales, as discussed earlier.

(3) Draw up an alternative 11th Plan which is strategic, not operational. In order to take all the discussions forward in a meaningful fashion, the Pan IIT Mumbai organizers should build another task force to work with the Planning Commission to draw up an alternative vision and strategic plan for the country. This effort will spell out a portfolio of strategic moves, and address the challenges/opportunities we have discussed in this conference. Furthermore the process must build consensus across political parties on the implementation requirements, and draw various domestic and international agencies committed to the success of the programs, particularly the ones which are oriented toward grass root development.

(4) Begin the bottom-up movement: The Boston Pledge story. In the North American Bengali Conference (in 2001), at a full day seminar entitled "The Renaissance Seminar" in Boston, a group concerned about the grass root development...
challenges of India gave birth to The Boston Pledge (TBP). Its mission is to "Incubate Public Services to Empower the Powerless." In that spirit, we began a series of entrepreneurship workshops with the help of the Bengal National Chambers of Commerce and Industry (BNCCI) for the grass roots in Bengal. Later, other organizations such as Adams International, TechnoIndia, and IPSO, and more recently IIT Kanpur and IIT Kharagpur have come forward to help the process of developing this initiative.

Each workshop has three components: An inspirational part to essentially arouse confidence in the minds of the participants, an educational part to make participants understand the basics of developing a business, and a trigger part to encourage participants to write a business plan (as per a guideline) so that they can each take part in the business contest. The first of these contests received close to 75 business plans, all of which were extremely doable and required investments from Rs. 200,000 to Rs. 1,000,000. Above all, they were innovative, environment friendly, and focused on conservation and efficiency. Perhaps all of them deserved the awards; the top ten received Rs. 50,000 to Rs. 30,000. We termed the contest the Entrepreneurship Springboard Program (ESP) 50K Award.

Building on the initial experience, we are now expanding this experiment nationwide. The IIT Kanpur experiment has been further enriched by encouraging each IIT student participating in the workshop to team up with a local grass root level entrepreneur to qualify for the business plan contest. It is our hope that through this process, we will able to connect the IIT minds with the grass root issues of the nation and, in the process, unleash the power of bottom-up "out-of-the-box" entrepreneurship. We are now in the process of expanding and enriching this program with the other IITs. IIT Kharagpur and IIT Madras have both offered to move forward with our program. Exhibit 12 lays out the essential process TBP follows in enabling bottom-up enterprising. If TBP could raise the resources and the IITs and the others universities could offer their infrastructure and students to this cause, we will be able to create the new model of development which in conjunction with the Grameen bank could create a model of development from which the rest of the world will draw inspiration. It
is our desire that every engineering and technology university participate in this experiment to create the much needed bottom-up economic buoyancy.

(5) Work on the Sixth E = Ethics
India must launch an all out effort to begin what I will term an “ethics movement.” It may be worthwhile to create a high powered “Ministry of Ethics” which can, in concert with media, the Ministry of Education, law enforcement agencies and industry associations, develop multiple innovative programs to promote the importance of honesty and integrity at different levels of India’s complex socio-economic structure. India would be well served to adopt a metric termed the “Ethics Index” which the ministry could use to report how well different organizations-public and private-and state governments are meeting the ethical standards along predefined dimensions.

As I close, it is my strong conviction that if, in the next ten years, we could organize all the different programs we have discussed today, and if India does not get too much drawn into the 19th and 20th century economic and business models, it could well lead a paradigm shift which the world would welcome. This shift, as shown in the Exhibit 13, will help nations and societies to make a strategic shift from a linear economic model which is “extraction-to-consumption” centric to a circular economic model which is “enrichment-to-conservation” centric.

India must not lose this strategic opportunity to provide a very positive and integrative leadership to the world, particularly given that the fundamental requirements for such thoughts are engrained in the ancient Vedic scriptures. I do believe that we have the skills, but do we have the will? The time is right NOW.
It is not too difficult to sense that the economic development model that has evolved in the last 500 years, particularly following the first Industrial revolution powered by the steam engine and then the second Industrial revolution driven by the internal combustion engine, is not only unsustainable, it is a clear recipe of bringing to an end all that humankind has learnt and achieved in the last 50,000 years (Exhibit 1). Yet India with a population of 1.1 billion people, perhaps absorbed with short term crises and successes, in a blind folded fashion is getting itself increasingly drawn into the western economic model, which could soon create major socio economic and ecological hiccups, derail the development journey every Indian aspires to run.

**EXHIBIT 1** A QUESTION OF SUSTAINABILITY

POWERFUL FORCES AT WORK WHICH WE CANNOT AFFORD TO NEGLECT

- **CHANGING ECOLOGY**
- **INCREASING POPULATION**
- **DEFORESTATION**
- **FINITE RESOURCES**
- **EQUITY**
- **65 BILLION TONS OF CO2**
- **RISING TEMPERATURE**
- **INCREASING SEA LEVEL**
It is important to realize that India's energy strategy will not work in isolation. If the nation's leadership is serious in addressing energy issues, it must take a holistic approach with significantly more creative and strategic view of India's agricultural base. However the changes brought on by 15 years of economic reforms focused perhaps only a few myopic economic parameters leading to a host of unintended consequences. For example well intentioned reforms to draw global investments and technologies on Indian economic landscape and to stimulate unconstrained consumerism without a full and strategic perspective of the bio, eco, bio, hydro, geo spheres have opened up seventy to seventy five percent India, largely the Indian farmers to global competition and given them access to expensive and promising biotechnology; but the process that evolved did not necessarily open the way to higher prices, bank loans, irrigation or insurance against pests and rain, energy & power solutions that they can afford to be competitive.

Furthermore, as multinational companies make deep inroads in rural India with costly, genetically modified seeds, bringing new opportunities to the farming community, they expose the farmers to new risks as their debts mount up. About a year ago it was saddening to read in the newspapers that in this central Indian cotton-growing area, known as Vidarbha, the unofficial death toll from suicides in a 14-month period was close to 1000. India’s economy may be soaring, but agriculture and energy remain its Achilles’ heel, the source of livelihood for hundreds of millions of people but a fraction of the nation’s total economy and a symbol of its abiding difficulties. In what some see as an ominous trend, food production, once India’s great pride, has failed to keep pace with the nation’s population growth in the last decade, and the basic base that could have driven the development of bio based energy sector in turn perhaps unconsciously, has been weakened.

Time has come when we need to be on one hand practical and on the other hand transformational. Instead of having conferences on "India as the Next Super Power", or “How to make Mumbai the Global Financial hub”, leadership mindsets should think of developing energy and power models which will not only enlighten the lives of seventy percent of India with innovative eco friendly power options but also provide the basic requirements of water, nutrition, health, education, and access to economic opportunities; such a strategic approach must not hurt but enrich the nature, not hurt but help our trade balance, not increase but decrease the divide between the rich and poor, not enclose its citizens to mega malls but enable them shop in micro bazaars in open, clean, and efficient environments where simplicity and freshness rules. We have to move away from concepts of mega hubs toward networked communities which are small, humane, and retain the local culture and heritage, yet celebrate the global technological developments in tandem with greening of our economic activities. In the process India could well conceive, develop and market energy nd power solutions and related Hardware and soft ware which are unique, have global appeal. Such value propositions which are first of the kind, India could brand as "Conceived or Made in India".

Indian leadership Government and Industry alike must realize that Globalization is not westernization; modernization is not motorization or “mallization”. We have to seize the opportunity presented by the emerging crisis caused by the current extractive relationship humans have with nature which is heating (global warming) up the global economic machine, by evolving a model which is truly authentic in its character, on one hand builds on our Vedic philosophy of harmony with nature and know thyself, and on the other hand forward looking to utilize the power of nature to serve the development requirements of India’s and world’s grass roots. While enriching the essentials of nature itself, such a new model could only be developed if we think of energy and power with a holistic perspective, if we view ecological processes with higher level of reverence.

**Vision of Energy & Power Solutions: Require Supply and Demand side perspectives**

Since its discovery, fire has supplied much of the energy which has helped humans since ancient times. Wood was a prehistoric fuel. Today the use of fossil fuels such as petroleum, natural gas and coal in power plants supplies the vast majority (close to eighty percent) of the world's electricity today. While eighty percent of the world is yet to benefit from the economic model that has evolved in the last 200 years, the model itself has become unsustainable. Neither we have unlimited supply of fossil fuel, and nor could earth’s atmosphere accommodate 65 billion tons per year of Carbon, which the current model if pursued will end up throwing into the atmosphere by 2050.

Moving forward, India with rising economic confidence, if indeed engages with the future with a
full view of nation’s challenges ahead, could put the nation in the driver’s seat to pursue affordable and efficient energy solutions that will benefit all Indians, improve India’s energy security, reduce the debt burden on Indian farmers by increasing their income, and help clean its environment or keep its environment clean, depending upon where one is.

Accordingly the Energy and Power Vision that should emerge must constitute several fundamental dictums:

**Demand side Vision:**
**Using power & energy intelligently & efficiently**

1. Socio-economic structures including design of living, work, and market spaces, must put fundamental emphasis on energy and ecology balance towards smart sustainable systems

2. Logistics of materials, people, even energy resources and power should be optimized first, as opposed to production or storage processes. Distributed energy and power models with small production centers need to be considered. Economic systems which are based on short distance movements with small scale production centers could lead to more innovative models which could also be more humane let alone energy efficient.

3. Development of equipments lighting devices, air conditioners, heating equipment, transportation systems which take advantage of latest materials, info, opto, bio and nano technologies so that they operate closer to thermodynamic efficiencies. As the Exhibit show (Exhibit 2) shows with achievable efficiency improvement targets the world could save almost 100 Quadrillion Btu/year energy.

If we could indeed instill such a vision for the demand side of the energy equation within the manufacturing, transportation services, construction and as a result in the household sectors, the world and India will be able to significantly reduce its energy requirements. As a result degrees of freedom in making feedstock choices could be significantly increase and India could well have for different economic segments of the global population have...
intelligent energy and power solutions. Depending upon the content of intelligence and degree of resiliency if the energy and power solutions for different price points different global brands could be developed, all targeted to increase energy efficiencies of different applications and reduce dependency on hydrocarbons.

**Supply Side Vision:**
**Developing sustainable resources holistically**

4. At the core of hydrocarbon vision must reside three fundamental aspirations: Energy Independence towards stronger geopolitical stature of the nation,
Security of short term supply though strategic investments in international hydrocarbon resources to combat volatility of Oil & Gas prices,
consolidated approach in the management of Hydrocarbon infrastructure with emphasis on conservation not consumption of limited HC reserves we have within Indian geological structures, on shore and off shore

5. Operational efficiency of power plants and transmission must be fully optimized enabling significant savings in capital investments could while reducing India’s hydrocarbon requirement

6. Full commitment to use of primary energy resources hydropower, solar power, wind power, and biomass, supported by nuclear power for base load so that fifty percent of energy supply for the household and services sector are non fossil or nuclear fuel based by 2050, leading to distributed carbon free, radiation free energy power solutions by 2:100 for the overall economic system.

India at the threshold of economic take off deserves an energy vision and policy that creates a cleaner and stronger India that reduces our dependence on foreign oil and also creates new jobs for Indian workers in rural areas, improve value added opportunities for Indian farmers. By creating and/or clearing the pathways to innovation, investing in our farmers and rural infrastructure, and providing Indian consumers with broader, more responsible and smart choices, the vision that emerges will provide India the tools to move forward, toward real energy security and sustainable path of development for the 21st century, which other nations could draw inspiration from.

In this spirit India must take advantage of its primary energy resources wind, water, sunshine, and the resulting biosphere, not succumb to secondary sources that too imported from regions who themselves are going through political & social turmoils and soul searching processes looking for answers to questions such as “What Beyond Oil?”

When it comes to feedstock options, India needs to be strategic and innovative as opposed to just following the catch up model which has already come to the end of its life cycle. Particularly given India’s relatively limited engagement with the 19th century and 20th century economic models, there is an opportunity to create a new path which other nations could follow, and will have long sustained life cycle for the benefit of our planet.

**Short Term tactical moves in absence of long term strategy is meaningless, and if not crippling**

In order to realize this vision India will need to evolve a long term strategy first, outlining how it will reach a vision of 2100 and 2050, and then decide how India must connect today’s requirements with the long-term requirements. Failing to do so, the nation will get increasingly drawn into this vicious cycle of “consumption centric quick solution” model which is crippling if not suicidal, and in the process India will not have the tools to break loose from the momentum of the past, even when its leadership is awakened by the crisis.

Any nation’s ability to address its energy and power supply issues will be determined by its capacity to think truly long term with a wide angle lens; as energy infrastructures cannot be developed overnight, India like Japan, China and several East and South East Asian nations must feel comfortable to commit to multi decade programs while ensuring that the free market along with government initiatives today no way constraints or limits what it might require to do 15 to 20 years down the road. Furthermore such a process will need to keep in mind the different scenarios of energy and ecological politics, technological and trade dynamics that might develop long term, in turn influence the nation’s energy choices.

In design of the long-term strategy India must realize its strategic advantage in the Power and Energy sector vis-à-vis the other countries and then decide how to offset the strategic disadvantages to its favor. The advantages due to (i) biodiversity, (ii) long-shore line (iii) solar intensity (joules/sq meter), (iv) the natural river systems, (v) relatively lower intensity of manufacturing in the overall economy, when coupled with the advances in biotechnologies and genetic engineering, energy storage systems, fuel
cells, micro turbines, propeller and blade technologies indeed provide India with a wide array of choices. A thorough ecological and energy balance of all these possibilities indeed could provide us a picture of at what time zones what extent of the nation’s energy requirements could be met through bio fuels, solar energy and wind power routes. For India with high population density, it is particularly important that the country develops a point of view on a distributed energy & power model so that it does not end up following the urbanization model of the G7 countries; instead by making the rural sector drive the development of the energy solutions of the future India must ensure that reverse migration to villages is facilitated, as each village is reengineered as a center of excellence of local resources and skill sets.

Brazil’s commitment to move towards ethanol following the first oil shock in the early seventies for example is an excellent model which India could have also followed. Brazil today is the largest producer of ethanol as fuel, and even advanced nations like the US are drawing on the Brazilian model. Since the early seventies, flexible fuel cars were popularized throughout the country. It is estimated that in 2007, ninety percent of the new cars sold would be flex-fuel cars. Flex-fuel cars can be bought from major manufacturers in Brazil or older vehicles can be adapted to run on ethanol mixes by changing the engine’s compression ratio etc.

While India could have followed the same model, now it could expand on the Brazilian model to include full range of sources based on bio mass. Ethanol can be produced from many sources such as sugar cane, corn, switch grass, sunflower, barley, plant stocks and other biodegradable sources. India must realize that the nation is the second largest producer of sugar cane but efforts to include ethanol in their gasoline mix is only minimal of five percent.

Furthermore for India with large bio diversity, bio fuels should not be limited only to ethanol, but butanol, biogas, bio diesel (Palm Oil, Jatropha), etc are other options that should be taken into consideration. India will need to develop an aggressive and innovative incentives for farmers and agricultural institutes so that farmers could work toward increase productivity of sugarcane, corn, switch grass, etc for use of bio fuels, without disturbing the food chain. In fact to resolve India’s long-term energy issues India must work towards improving India’s land productivity so that increased percentage of land could be diverted toward bio fuels. Good news; Jatropha and Castor seed grow in semi arid land which could be utilized to resolve some India’s supply issues. In fact in several parts of Gujarat, Castor seed output per unit area of land is highest in the world which it must build on to develop bio fuel/bio power. Similarly to promote solar and wind power which are weather dependent India will need to promote systems engineering capabilities so that different technologies including intelligent storage technologies/fuel cells together could provide power solutions in an integrated fashion in different regions of the nation (Exhibit 3).
As the long-term strategy is defined India’s short strategy should focus on bridging the current to midterm (next ten years) energy requirements vis-à-vis the long term programs.

1. Efficiency Improvement of all energy conversion devise across the board: Creatively designed incentives and penalties similar to carbon trading should be promoted to develop energy efficient household, commercial, industrial equipments (e.g. Lighting devices, air conditioners etc) and transportation systems

2. Transition to new energy environment: Innovative tax incentives coupled with Government funding should encourage new housing complexes, SEZs, and villages with out power to use alternative energy resources even if the fully loaded cost per unit electricity is higher than the hydrocarbon based models.

3. Acquisition of International Hydrocarbon resources: Instead of aggressively auctioning out India’s limited strategic resources, India should aggressively partner with second tier oil and gas rich Governments to organize development initiatives that could provide India preferential access to unorthodox resources. For example high level strategic relationship with Egyptian government could be established through a consortia of Oil and Gas companies for the development of Egypt’s Oil and Gas resources in Western Deserts, Damietta (North of Alexandria), and Upper Nile (Southern Egypt). Geological studies show that several regions in Africa HC reserves could be significant, where India building on the Egyptian platform could take strategic positions with exclusive give and take relationships.

4. Conservation of Nation’s Hydrocarbon resources: India should limit access to its own limited resources so that such resources could be only deployed during critical situations for example triggered sudden interruptions in international supply resources likely hoods of which will only increase given the recent trends in terrorism, geopolitical moves some oil and gas rich nations might take to express their positions on international issues

5. Smart use of India’s coals reserves: India’s coal reserves are significant. Led by Coal India and different research Institutes including the IITs should be encouraged to develop clean coal technologies so that full range of technologies including Fisher Tropsch process are promoted for different regions for different scale of applications, so that a disturbed energy model could be promoted such that energy utilized to move coal and losses for power transmission are minimized. New coal based power generation systems should be so designed when bio mass/bio fuels become competitive long term, some of the elemental technologies of the coal infrastructure could be utilized for the new paradigm

6. Energy Education: In order to build a total awareness across the nation and to inspire new technologies for both demand side efficiency gains and/or alternative ways to convert clean sources of power, from primary school to IITs a comprehensive stream of energy and ecology education programs should be developed, integrating chemistry, physics, life sciences towards the nation’s energy mission

It is important to realize that success of short term programs will influence the success of the long-term program. Accordingly the six programs proposed above must ensure that they are in full harmony for the long term and each one of them will only help not hurt the development of the long term strategic programs.

**Multilevel Multi Pronged approach with coordination and holistic framework need to be launched**

Moving forward, not only in India but world wide, we will need to fundamentally reprogram our thinking to create a cleaner, greener and stronger economic system by undertaking a series of organizational changes in the Central and State Government and deploying a set legislative actions which will enable the bridging between short and the long term requirements, while facilitating development of an integrated approach. Accordingly India’s leadership at the Prime Minister/Cabinet level will need to immediately undertake a fact based summit meeting to adopt several policy level reforms:

**The essential requirements:**

1. Like the Knowledge Commission India should consider to establish an Energy Commission which will be responsible to develop and short and long term strategy of India from multiple perspectives as outlined above

2. Reorganize the Ministries in such a fashion that better coordination is enabled between Oil & Gas, Coal, Nuclear sectors and renewable energy resources on the supply side, and energy
efficiency related gains on the demand side.

3. Consolidate the State owned Oil and Gas companies into two companies (upstream and downstream) which will be responsible to optimize the overall Hydrocarbon strategy of the nation in tandem with international markets and global competition.

4. Given the strategic significance of the energy sector for the overall socio-economic development of the nation, the role of the free market should be limited and guided toward certain goals the nation has to meet in this sector. It will be erroneous to expect that the invisible hand of Adam Smith will be able to address the complex issues related to India’s economic development and energy challenge.

5. Develop and design building codes for commercial, industrial, household which are energy efficient; such codes should be backed up by tax incentive and penalties vis-à-vis benchmarks of power consumption per capita growth trajectory the nation should work towards. Similar legislations should be developed for the transportation and logistics sector so that the free market resources could be guided toward energy efficiency, and in general reward energy efficient behavior.

Overall, India must develop an energy framework (Exhibit 4) which will enable integrative thinking at the policy level while enabling conservation and facilitating multiple routes to energy & power solutions. The future possibilities if pursued with a strategic mindset could indeed open up India toward new industries which are employment intensive, will promote development of small towns and villages as centers of excellence, and could well create the new distributed power and energy solutions model for the benefit for the entire planet. In turn Indian companies could develop a range of branded solutions as systems integrators and/or brand specific Hardware or software in creating the new economic system which are energy efficient and ecologically friendly.
Over the past two decades, I have had the privilege to directly interface with the leaderships of more than 200 Indian companies - from the ones which are in the multibillion dollar league, to the ones whose annual revenues are just about $10 million. While different companies, large or small, single or multi business have taken different routes in adjusting to the various stages of liberalization and globalization India has gone through, majority of them appear to have developed a very high degree of confidence in their resolve to become global players. A few organizations have done extremely well to adjust to the new fundamentals, while many others remain positive in their resolve to transform into forward looking entities. I view this new spirit to modernize with lot of enthusiasm, as I firmly believe the "can do spirit" itself, is perhaps the most valuable asset the Indian companies have developed in the past decade.

Now, how much we can leverage this asset will depend how far the vision of the leadership of companies could stretch and with what level of commitment and confidence, humility and agility, Indian corporates could stimulate and sustain the development process with a global perspective. Indeed the companies, particularly the ones above $100 million in revenues have an historic opportunity to cease the moment, to emerge as true global players with their own brands. They are small enough to be supple and resilient, and big enough to meet the requirements of critical mass.

It is my strong conviction and hope that the Board Room of those companies who are willing to (i) engage with the fundamental shifts in the global market place
face the short-comings in their management practices and thinking habits with candor, and 
uncover the basic competitive strengths hidden in the grass roots and heritage of India, could well 
define the "Next era Multinationals with the Next era Brands", as Japan did in the sixties through 
eighties, South Korea in the eighties through nineties and China/Taiwan more recently, in specific sectors.

Of course, it will not just happen, it will require fundamental change in mind-set and change of 
gears, as far as their operations and organizations/management processes are concerned. While the process of transformation the Indian companies have gone through in the last 20 years 
was absolutely essential and was significant, we must however remember it only qualified the Indian 
industry to play the qualification rounds, let alone play the quarter finals, semifinals and the final.

Moving forward, to play the global leagues industry will require, - innovation of value 
propositions which are distinctive, bold experiments which are global in scope, and commitment to 
evolving creative market mechanisms which will one hand enable nation building to on the other 
hand facilitate engagement with the consumers' aspirations in multiple nations.

This thought piece essentially discusses (i) What will be the nature of the global competition (ii) What 
will it take to secure the global trust in the new dynamics? (iii) How must the next stages of 
development unfold, in building world class brands in un-covering the hidden potential of Indian 
Industry?

1. The changing character of global competition:

With increasing intensity of knowledge in the global economy (Exhibit 1), it is clear that those companies, 
irrespective of where their headquarters are located who secure 'knowledge advantage', will be the 
future winners. Securing "Knowledge advantage" is by definition a dynamic process, which will require 
boardrooms to shift from "entitlement' oriented thinking habit to "enlightenment" driven exploration 
process.

The challenge of survival: Accordingly any 
an organization today in order to create "Knowledge advantage" has to focus on three forces: 
Globalization, 
Digitization, and 
Innovation

1. Globalization: With markets open 24/7, 
connected through high speed networks for a 
company to be competitive it has to be able to 
(i) access the best resources, 
(ii) serve micro niches across the world to gain 
transient scale advantage, and 
(iii) secure knowledge from where ever the latest thoughts are being inspired from. While today many 
realize the need to meet these extreme requirements, Japanese companies even in the 
sixties developed this global surveillance and learning capability, which in spite of their language
3. **Innovation:** Enhanced connectivity and globalization has made the third force innovation even more intense. For companies to survive the acceleration of value innovation, it is no longer enough to have a once in three year new product launching event, organizations are being continually drawn into competitive games in which success is determined by how speedily new ideas are brought into market place, and how trust with customer is built or enhanced around the hard or soft attributes of value proposition. Although two decades ago GM had tremendous brand and scale advantage over Toyota, today Toyota enjoys more trust from the consumers because of the connectivity it has built with auto markets world-wide around innovation—those little attributes in the car, in the show rooms and customer service centers which together make a big difference in the hearts and minds of the buyer and the user.

Indeed competition today is in a continuous state of “dynamic disequilibrium” – characterized by complexity of multiple relationships and intensity of knowledge – both online and offline.

**Facing complexity of relationships and intensity of knowledge: Why brand matters?**

In this new world of “dynamic disequilibrium” securing and sustaining competitive power in harnessing the forces of globalization, digitization and innovation will increasingly depend upon how organizations manage a three sets of Portfolios: (i) Portfolio of skills to ensure that you have the most competitive skill sets in areas your organization specializes in, (ii) a Portfolio of relationships/alliances to ensure your skill gaps are complimented by partners from consultants, investment bankers to technology providers, (iii) Portfolio of connectivities with customers ensuring that the architecture of touch points with consumers enables you to dynamically learn from and serve customers experience space, - pre purchase to post purchase of your value proposition. Lexus in a short period of less than twenty years has developed the identity as the benchmark of “Automotive Excellence” is because how it managed all these portfolio sets to create an “evolution envelope” which consumers look forward to relate with.

Accordingly in architecting competitive portfolios corporate identity/brand management perhaps will be the most critical requirement in the 21st century. An organization’s ability to connect with resource providers, talents/skills, channel and technology
partners worldwide are critical in building competitive advantage, which is obviously determined by the corporate identity it enjoys; in turn its effectiveness in building connectivity with its customers is determined. As a result in the knowledge era identity building pathway have three dynamic processes at work each reinforcing the other (Exhibit 2).

If the process works it will have exponential effect on corporate performance, if on the other side it does not work it could hurt a company's identity very quickly. Companies in the advanced economies are struggling to make adjustment to the new environment. Only a few have succeeded to breakaway from the 20th Century "command-control" decision making habits and monolithic mindsets to fluid working arrangements between multiple centers of competencies, leading to what I term "adaptive networks" built around the dynamics of trust and identity. It is in this context we have to examine how Indian companies should prepare in building their presence in the global market.

2. Securing global trust in the new dynamics

In the past two decades enhanced exposure to global competition, proliferation of consumer bands and increased intensity of technology in value propositions have helped companies in India to come to terms with what it takes to succeed in the borderless world which is becoming increasingly consumer centric, innovation driven, and volatile. Indian companies which have demonstrated the capability to adjust to the forces of liberalization must now build on the momentum to rise to the challenges of adjusting to the emerging competitive rules.

Indian industry's state of readiness?

What is encouraging, is that in the last two decades in the two-most knowledge intensive industries - Software and Bio-Pharmaceutical sectors, several Indian companies from TCS, Infosys to Ranbaxy, Dr. Reddy's have earned respectable stature on the global stage and have successfully positioned themselves as mainstream and/or center stage players. Furthermore in the Automotive and Tea sectors recently companies like, Tata Motors, Bajaj, Tata Tea to name a few have begun to build global presence though innovative approaches which are definitely steps in the right direction. Also in the upstream companies like Ispat Group, Jindal Steel, Reliance, ONGC, Tata Chemicals and several others are developing international assets and global outposts which all together provide Indian Industry, if not "Made in India", a wide platform to build from in building global presence.

At the same time the first wave of Indian professionals who immigrated overseas in the late sixties/early seventies and even later, many are now in positions to shape/influence the strategies and
policies of Fortune 100 Companies. These two
developments, - “successes from India out”, and
"success of Indians outside" today provide India a
stature which if strategically harnessed could provide
the nation much needed boost in the geo-economic
and geo-political positions of the nation.

However, lack luster performance of its
merchandise exports, continuous failure of Indian
companies to meet quality and timeliness
commitments, or not being able to qualify on
productivity/sourcing programs of buyers overseas
vis-à-vis China, Thailand, Vietnam, Eastern European
and Latin American countries, and even Bangladesh,
are major barriers for Indian corporate Sector to
build mass scale global presence.

Only way Indian Corporates could come out of
this paradox is by committing themselves to emerge
worldwide as aspiring multinational companies with
their fundamental competitive advantage rooted in
India's inherent strengths, and in the trust of global
consumers. Companies have to develop a new
capability of fusing India's strengths in the design of
value proposition, so that the basic products which
utilize India grass root skills, be they be in
handicrafts or horticulture, automotive components
or active pharma ingredients, reflect the nation's
knowledge advantage.

In short, a knowledge layer could drive the
differentiators of value of a product, particularly as
increased emphasis is placed on differentiating a
value proposition along the life cycle experience of
the user. Exhibit 3 provides a concept of how the
new approach has to be visualized.

**Why branding is even more
significant for Indian Industry?**

In order to secure knowledge led competitive gains
Indian Companies must realize that they have to
evolve organizational properties which will attract
the best people to serve those principles. While this
is a generic requirement for any company any where
in the world, for Indian companies aspiring to build
global presence it is particularly important, as they
during the initial building stage will not be able to
compete for people vis-à-vis more endowed
multinationals from the TRIAD on the basis of
financial rewards alone. Even if they choose to do
so, there will always be another company who
could win the auctioning process of skills.

In addition in a country whose per capita
income is still below seventy percent of the
countries, exorbitant financial rewards for
managements of Indian companies could only serve
to increase the gap between the poor and the rich,
and the cost advantage that Indian companies could
potentially create by utilizing low cost labor could
easily be off set by high cost management. So we

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**EXHIBIT 3  CREATING STRATEGIC ADVANTAGE WITH KNOWLEDGE LAYER**

**VISION OF THE NEW BREED OF INDUSTRIES**

"VALUE CREATION THROUGH INTEGRATION OF BITS AND BYTES
WITH ATOMS AND MOLECULES"
need to develop innovative answers to a very basic question, - how could Indian companies attract the best talents and access best partners to serve attractive customer niches with non financial rewards? Consequently, the significance of building the "trust factor = distinctive identity/brand" equation which challenges well established multinationals will be even more important for Indian companies.

3. Architecting world class brands in un-covering the hidden potential

In view of the possibilities and the challenges ahead and the initial forays Indian companies have made on the global stage, organizations must now raise the brand management process to the board room level as the most important driver of an organization's vitality which leadership of companies must pay close attention to. We have to keep in mind brand management is not about running a seductive advertising campaign (which perhaps is necessary but definitely not sufficient); it involves building the character of the company in synch with leadership's vision, which is alive both, in the universe within and the universe outside of the organization.

A Five Step Iterative process:

Exhibit 4 lays out the essential steps leaderships of companies should consider undertaking in securing global presence, and in the process uncover the hidden potential of their organizations as revered multinationals. In the world of broadband, securing a robust Brand identity to emerge as a 21st century multinational could be achieved quite rapidly only when the process is managed in a scientific, strategic and supple fashion.

Below I have outlined the significance of each of the steps and how will they need to be managed in an objective, innovative and forwarding looking fashion:

STEP 1: How is your Organization perceived today? Most organizations that I have interfaced with in assisting them build and realize their strategic vision had strong misconceptions on what they believed in terms of how their organizations are being perceived by the outside world and the people within. In many cases the boards underestimated their organizations latent potential and most often over estimated their competitive positioning and/or their customers’ connectivity with their products.

Accordingly before you think of how to build
your company's identity or character as a global force, you must figure out how you are being perceived in an objective fashion. Some may say perceptions are different from how we really function, but we must realize it is the perceptions which drive the reality of your performance. After all "beauty is indeed in the eyes of the beholder". Such an exercise must include understanding (i) What are customer and stake holders desired attributes in your organization, (ii) How does perceptions / awareness of your company and competitor brands compare today? (iii) How your and you company performs vis-à-vis the perceptions, and (iv)how all the stake holders customers to partners , form mangers to front liners rank the "holistic stature" of your company vis-à-vis your competitors in the chosen playing fields?

A solid base lining exercise when done objectively and scientifically with 360 degrees perspective, provides a boardroom indeed a great understanding of the organization perceived character which you want to build on in securing a global stature.

STEP 2: Know thy self: This perhaps the most difficult step in the process. It essentially involves internal soul searching to determine the cultural and skill traits which enabled the company arrive at where it is today. Through a series of leadership workshops conducted by an outside expert you go through the discovery process to essentially identify what is the true DNA of the company. The executives who participate in the workshops should not be ashamed to uncover traits of the company which they may not be proud of. What I have found extremely exciting in the conduct of such exercises, is that often such process uncover the hidden values which are the true differentiators but never articulated and/or discussed in management meetings. Given many India corporates in the recent past have gone through radical changes to adjust to the forces of open market, such an exercise could indeed now open up new vistas of organizations which could be significant value.

STEP 3: Designing the "Value-code": This step is the heart of the process. Now that you know how your are perceived and you know the fundamental traits which define your true DNA, during this step you develop a sequence of traits which influence an organizations fundamental behavioral properties which will shape the future character of your organization in light of the vision of your organization. The exercise must define the behavioral codes all across the business system of the company from Technology, through Logistics, Sales & Marketing to after sells -Service, so that together they create an experience and environment which your advertisement campaign must support leading up to a full fledged brand campaign. This step if done in a scientific fashion taking into account hard and soft factors of the organization could enable Indian corporates develop organizational properties which are truly unique and empowering. As you will note brand building essentially involve corporate character building, advertisement programs and promises you make in the media must only follow, - so that whatever you promise on a product label or the bill board/ TV screen indeed is experienced by your audience, both internal and external in every interface. In short the design of the value code guides the process of expression of organizations essential DNA traits in realizing its vision.

STEP 4: Mobilizing the genetic codes: Once the value code is defined in sufficient detail, during this step an organization must define how each of its interfaces with the external world and intra-faces within the organization must change so that the new character become truly visible The architecture of the behavioral processes must define the brand architecture of the company. In other words in addition to promotional programs Brand Strategy essentially defines a comprehensive "touch points" strategy, which must be in full synch with the overall strategy of the company.

STEP 5: Navigating through the mind of the audience: Like accountants audit corporate reporting, it is important the a company has an objective audit process in place to continually monitor how the interfaces are reflecting the desired character of the company vis-à-vis various stakeholders and as a result how the perception of your company and its products are getting mapped in the mind of the audience. Depending upon the progress a brand campaign has made, you should consider organizing small events, interactive experiments with your target audiences what I call "Brand stimulants" which are truly innovative to activate specific product or organizational attributes, in turn enliven the touch points.

In view of the above discussion, those companies who are confident of the value propositions they want to roll out, (because of in depth market research and channel strategy), must work toward evolving a theme around which they
want to be known for. Using the five step process, for example for consumer products the concept of "double badging" could be developed with retailers such as Wal-mart, K-Mart, Sears, CVS, so that both the Indian brands and the partners' brands together define the identity of the value propositions. In this fashion, Indian brands will get known, earn the trust, there by providing more degrees of freedom for "go to market" of future value propositions.

On the other hand if the value proposition is not clear, organizations could serve the OEMs, preferably with non exclusive arrangements build trust with the downstream companies and earn its reputation as good-suppliers. E.g. Taiwan Semi-conductor, Galanz in microwave ovens in mainland China, and then gradually examine how to develop brand like strategy, by ensuring for example "manufactured by "become part of the product brand. Companies who are suppliers of components or are in B2B businesses, the five step process must explore how Shimano provider of Gear Systems for Bicycles branded as "Powered by SGS" enhance the value of bicycles manufactured by the Italians or Chinese, as does YKK zippers for jeans, "Intel inside" for lap tops and PCs for microprocessors, create value for your customers

Towards a National Campaign : "Let Thousand Flowers Bloom" In order to play this new role in a practical and cost effective fashion, India as a nation and then within each target sector, it must enable two way interactivity with the target audience. A comprehensive Brand strategy "Manufactured in India" supported by three specific initiatives to make meaning of the desired identity real and active:

1. Define a strategic approach to promote the Made in India as a reliable identity by ensuring all products exported from India meet basic standards of quality, reliability and timeliness; Indian government with Industry associations like CII, Assocham, FICCI must team up to begin a nation wide movement.

2. Integrate Indian professionals abroad in brand and organization building efforts so that knowledge assets available outside could be fused with knowledge assets inside in innovative ways to create professional interfaces with global markets

3. Launch a national surveillance mechanism which will ensure what companies advertise as their promise are indeed delivered in a consistent and reliable fashion. For example a national association of media professionals could play this audit role both to protect and enhance the codes of ethics of the profession but more importantly act as a guiding light which will ensure promise and perceptions match. In view of the above discussion, it is my hope that leadership of Indian corporate sector with the Indian Government will evolve a strategy for developing multinationals and building global brands in the target market segments. Only when thousand different names earn the trust of the global market place, will India as whole earn the trust it deserves. Today, China’s credibility has been well established from almost from nothing only 25 years ago. India with lead in knowledge intensive industries could speed up the process of credibility building through fundamental emphasis on being genuine. Is it indeed an opportune time to build on the experiments of change management in the last decade, to fix the fundamentals with bigger and bolder vision and in the process build strategic positions in the markets with value propositions and brand programs which take full advantage of India’s unique strengths.

Once the basic doctrine of a multinational organization is established with a revered identity, the new inspirational mechanisms must be cultivated to develop slate of products which are not mere extensions of product ideas imported form abroad; let new value propositions be developed to address unsolved problems with talents world wide. In multiple sectors for ecological, environmental reasons the world is looking for new solutions to the old industries such as energy, water and transportation, in which India could well be the well be the fountainhead of the new solutions.

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