

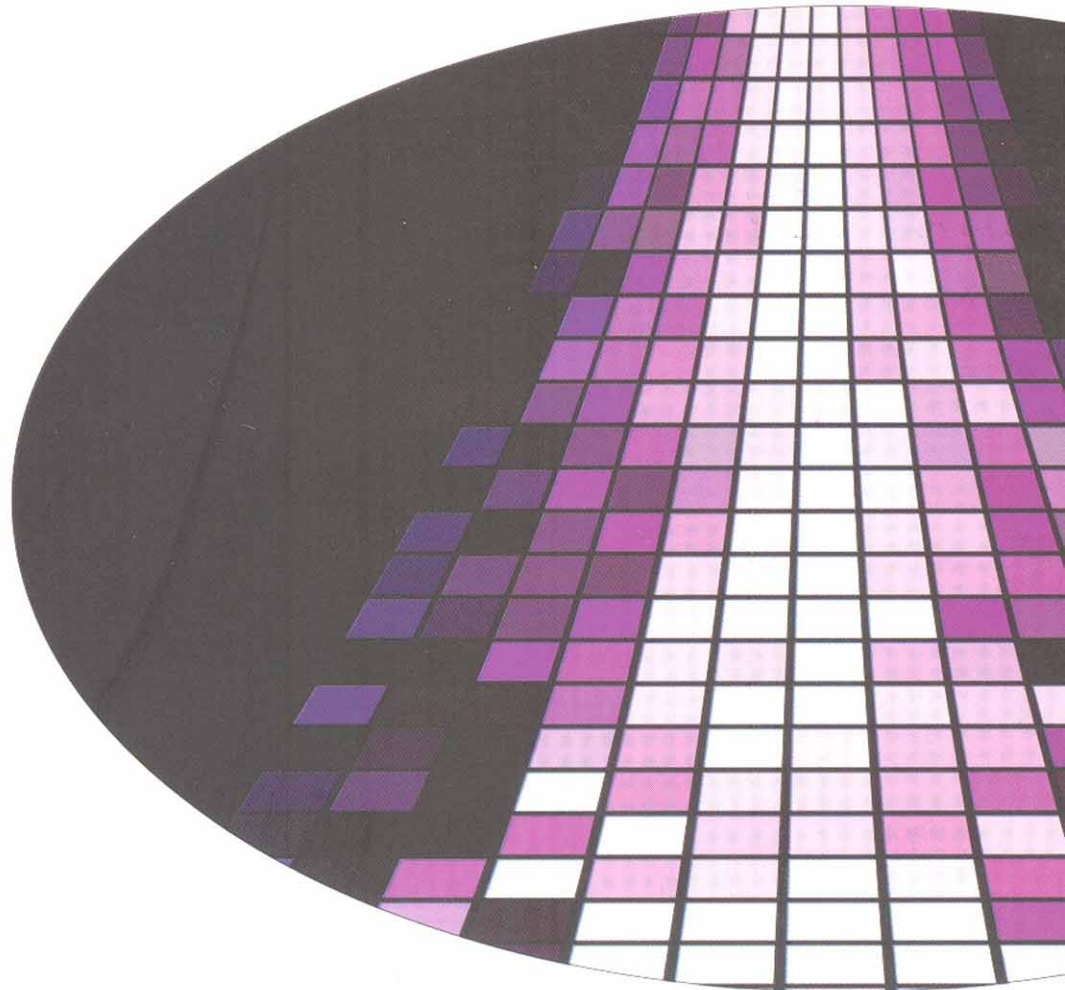
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**Technology and Entrepreneurship: How India Can Lead in Creating a Sustainable  
World Future**

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# Technology and Entrepreneurship: How India Can Lead in Creating a Sustainable World Future

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## Abstract

*In the last decade, a global economy saw unprecedented growth that resulted in world recognition of developing countries as having superpower potential. But, in economies like India growth has not been beneficial for large segments of the population thus creating a socially volatile opportunity gap between the rich and the poor. Through examination of game changing technology and business models, this article poses a strategy to support creation of a new economy that does not have to make a choice between growth and poverty eradication. The approach calls for leaders to invest in locally appropriate technology research, build market forces to scale impact in rural or remote areas and to expand on the success of the microfinance ethos of investing in people through education, training and healthcare. While challenges are acknowledged, this article focuses on the key innovation advantages: a growing market and a young population demographic which can position India as a leader in sustainable growth for the world. Partnerships between government, corporations, and academics that foster entrepreneurship can achieve economic as well as social prosperity and examples are provided as impetus in overcoming resistance to change.*

**Keywords:** *Technology, Infrastructure, Social Prosperity, Sustainable Development, Poverty Eradication*

## NEW ECONOMY, NEW STRATEGY

Today, in India, more people are significantly wealthier than they were 10 years ago. It is also true that today more people in India are hungry and live below the poverty line than they did 10 years ago. Using World Bank poverty line of \$1.25 (Rs. 56.13) per day, the estimated number of poor in India in 2004-05 was 41.6% of the population or 456 million. In 1990 the poverty rate was 51%. While at first glance a rate reduction of 9.4% may seem like an improvement, in 15 years, the number of poor in India actually increased by 20 million. Economy analysts show that poverty estimations vary greatly among the leading authorities. Estimates by ADB (Asian Development Bank), which pegs the poverty line at \$1.35 per day, are higher and the official poverty estimate by the Planning Commission for 2004-05, which is 27.5% of the population or 301 million, is lower because their chosen poverty line metric is lower than the 15 poorest countries in the world - an inconsistency they are in the process of addressing.

But, no matter how you count the poor, all estimates lead to the same conclusion. Despite the high growth rate of Indian economy in the recent

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past, India has the second highest poverty-after Nepal-among all Asian countries. India is second in growth metrics only to China and has now reached world stature as an economic powerhouse but China, with only marginally higher growth rates has, in the last 15 years, managed to reduce the number of poor by 475 million.

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This article examines the role of technology, business and entrepreneurship to propose a strategy for venture creation that does not have to make a choice between profit, people and planet. It calls for emerging economies to leverage understanding of their local markets to deliver new technologies to create leapfrog solutions in basic infrastructure services in energy, education and healthcare. A judicious balance between innovation and global technology collaboration is proposed to prevent deployment of stale technologies that have served developed nations but are just too expensive (literally as well as in terms of climate impact) in an emerging economy. Partnerships between government, businesses and non-profit organizations are examined as a way to create market forces to scale or replicate impact and foster rapid change once an effective solution has been found.

#### **THE INDIA PARADOX**

India faces the unique paradox of growing economic prosperity coupled with diminishing social prosperity at a scale seen in no other developing country. Mutually exclusive developed (e.g. Information Technology) and undeveloped (e.g. Agriculture) economies operate side-by-side but provide no advantage to each other. Worse, on average, the two economies present a false picture of a developing economy, which in reality India is not. Hence, clearly, at this stage, growth alone is not a successful strategy in the India context.

In absolute terms, India is more prosperous than ever before. India has economic momentum, but unless there is a change in direction, this momentum is leading us over a cliff. The opportunity and the challenge for India is to channel this new found prosperity to invest wisely in its future to sustain economic growth without degrading the environment, address the growing poverty gap, and create opportunity for all through new education paradigms. While issues of income gap and climate change are global, nowhere, other than China, do we see the scale and sheer numbers of people that are entering the consumer economy. This scale creates urgency for change. India is a low-carbon economy but primary energy demand is expected to double by 2030. The paradox is that India's rural economy still draws energy from forests and grasslands - climate sensitive resources which are diminishing rapidly with increased demand, while

urban infrastructure is largely supported by polluting coal and imported fuel.

In its rush to grow, India could soon bankrupt itself of its natural resources as well as its recent gains in access to financial capital.

Two developments have become critical indicators of the need for a change in strategy.

### **Disproportionate Cost of Development**

At first, the India growth story leveraged research and innovation done in developed countries in the area of Information Technology (IT). A relatively small technical elite in India served developed markets through outsourcing talent or back-office IT work and in turn these new jobs fuelled the local Indian service economy in larger metros where the technical knowledge worker had access to the essential supporting infrastructure such as electricity. Impact in rural India was minimal. Computer and Internet penetration in India remains among the lowest of any country (around 4-7% depending on how you measure). Cities in India started looking more and more like developed economies; salaries of knowledge workers rose; the cost of living also rose along with expectations of what constitutes a basic need (e.g. air-conditioning), to match global standards. The downside of this development is now becoming visible. Besides the growing economic divide (a typical village relies on cow-cakes for fuel just as it did hundreds of years ago), there are other signs that our technology management strategy is not working. Increasing pollution and decreasing fresh water sources are visible drivers for change. And there are those that are less visible but more immediate. For example, PCs and cell phones are critical element of the India growth story. But the rapid growth in the number of new PCs translates into fast-growing numbers of obsolete computers. Gartner estimates more than 180 million were replaced in 2008. Some will be recycled but large numbers will simply be buried. "Some 35 million PCs will be dumped into landfill with little or no regard for their toxic content." Seventy per cent of the world's discarded phones and computers were exported to China in the past. Tests show that dust in areas near Chinese e-waste recycling centers had illegal lead levels in nearby schoolyards and even toxins in mothers' breast milk. The problem of electronic waste will simply be shifted from China to other developing countries as China imposes stricter regulations. Thus, technologies that have fuelled economic development so far are proving to have too high a human, social and environmental cost; disproportionately borne, willingly, in the name of growth, by those who have benefited least from it (Raman, 2008).

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**Educated Workforce Now a Minority**

Second, India initially had a relatively large (in terms of numbers if not as a percentage of population) educated, English speaking, underemployed student population graduating from tier one universities and technical institutions. Training colleges like NIIT (<http://www.niit.com/aboutniit/Pages/Overview.aspx>) became phenomenal success stories in their own right as they tapped into this ready-made nascent talent to create, in a short period (programs varied in length from 3 months to 2 years), highly competent, world class knowledge workers in the service of the global economy. Initial training led to an experienced, technically savvy, globally competitive workforce. However, during the growth years, almost no reform took place in the education system and so India now faces a severe shortage of knowledge workers, creating an unhealthy dynamic around compensation versus competence that augurs a collapse in India's reputation as a software giant.

*Good and Bad:* Both these developments are good and bad. Good because with newfound economic gains India has capital as well as the latest technical know-how; bad because the strategy that fuelled initial growth will not continue to do so, because it is not scaling across India.

Still, economic prosperity has put India squarely in the international political crosshairs and any loss in growth momentum is potentially disadvantageous. Thus any attempt at creating a strategic change to deliver economic as well as social prosperity, which means equal opportunity for all citizens to participate in India's development, will be controversial as well as risky. On the other hand, given the magnitude of the problem, represented by the sheer number of people that must be lifted out of poverty, India has no choice but to invest in creating a new economy that delivers inclusive growth opportunity across the entire spectrum of diversity that is the Indian ethos.

**GLOBAL AND LOCAL**

Business, social and political context in years 2000+ is significantly different from what it was in previous decades. Poverty associated problems like education and healthcare services are now global issues; spread of HIV/AIDS and climate change is cause for concern for all. Meanwhile profitable markets are to be had in developing countries, at the bottom of the pyramid or BOP (Prahalad, 2005) and multinationals increasingly rely on geographic expansion to grow and create new market share. By being global in thinking and collaboration but local in addressing poverty elimination, India can become a leader in creating a sustainable future - for itself and for the world.

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**The Innovation Imperative**

Innovation leadership means being local; but in a global context. Game changing innovations requires a confluence of market, technology and business understanding. In *The HP Phenomenon* (House and Price, 2009) the authors cite a culture of next-bench innovation and bottom-up employee engagement- an empowerment model often called the HP Way- that created six transformations and enabled the company to meet the challenges of new markets, customers, and changing times. Next-bench refers to experiential understanding that comes from observing a problem literally at the next-bench, rather than asking a customer for solutions. Similarly, in *Competing for the Future*, the authors (Hamel and Prahalad, 1994) propose strategies for creating the markets of tomorrow for long term viability. Proximity of market and technology as well as cross-cultural understanding leads to collective intelligence; analytical as well as emotional understanding to create a heart-head connection, to deliver social as well as economic impact (Prahalad, et al, 2004; Raman, et al, 2009).

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**Entrepreneurship: Next-Bench is Next-Door**

A global innovation issue today is that growth markets are in developing countries while new products and services are designed for saturated developed country markets with established infrastructure. For example, over 90% of all global business transactions rely on IT technologies. Computers are housed in large data centers that are not designed for energy efficiency since developed economies have relatively inexpensive, steady supply of grid power. In India though, data centers must supplement available electricity with diesel burning generators that are expensive as well as highly polluting to guarantee up-time. Thus financial incentives for data-center redesign are far greater for India than for the United States but for established businesses, it is easier to invest in maintaining growth and to pay recurring infrastructure costs rather than shift strategy to invest in the longer term solution of energy efficiency and data-center redesign. On the other hand, an entrepreneur, starting a new business or a new division in an existing business would be motivated to take advantage of new technologies and hence, in a new strategy, be supported through access to capital or other forms of risk management.

True, like India, there is urgency in the USA, the traditional innovation powerhouse, to shift to cleaner, renewable energy sources, fix the healthcare system, improve education and reduce rural poverty, but the social dynamics and market forces are completely different. Thus innovation in infrastructure development, when majority of India is not on grid-electricity, the imperative for innovation in renewable energy is far greater because

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India's problem is immediate not a distant climate change threat. Similarly, there is immediate financial incentive for healthcare innovation in India in addressing its "burden of disease"; a matter of access to sanitation, pure water and clean air free of pollutants that comes from burning kerosene or wood.

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The urban-rural income and lifestyle divide that is the reality of India today, is seen nowhere else in the world either in scope or in scale. While daunting at first glance this also means that the innovation imperative is strongest for India. A technically knowledgeable workforce in the metros means there is opportunity to leapfrog tired technologies and achieve sustainable growth through local market development. India is a global player, but its social poverty is local: next-bench is next-door.

### **ADVANTAGE INDIA**

**Human Capital:** With one of world's youngest populations, often called its demographic dividend (Bloom, 2003), India has vast resources in human capital. With an investment in education and research, it has the potential to skip tired technologies that fuelled the industrial revolution in the developed nations and innovate leapfrog solutions that are more sustainable and rely on local rather than imported resources. Yet as the middle class has steadily grown, so has the cutthroat competition for the limited slots in the country's system of higher education. Of the 186 million students in India, only 12.4 percent are enrolled in higher education, one of the lowest ratios in the world (The New York Times, March 23, 2010). "If you have 150 million or 160 million children who don't go to college, what is going to happen to them 10 or 15 years from now? The demographic dividend will become a demographic disaster" says Kapil Sibal, the government minister overseeing education (Yardley, 2010).

Ministry of Human Resource Development or MHRD (<http://www.education.nic.in/>) is putting in education funding/reforms. An upcoming change in policy allowing foreign universities to operate in India is a step in the right direction (The Wall street Journal, 2010) for increasing capacity while creating competition that will drive quality as well as opening up the possibility of education oriented new business venture creation by Indian entrepreneurs.

*Growing Markets:* Even before C. K. Prahalad propelled India into the world consciousness with his seminal concept about the bottom of the pyramid (Prahalad, 2005) and the fortune to be found at the bottom of the pyramid, wealthy Indians, like the Raja, Maharajahs of yore, were a target for new western products. Advantage India has been that historically, it has not been an isolated economy. A stable legal system and an industry reputation for ethical conduct like enforcement of copyright laws, has

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attracted developed economies looking to grow their world market-share with traditional infrastructure services and products: from cars to kilowatts. So, as long as India can maintain its growth at current rates (7%-9%) India continues to present an attractive market for investment and innovation for global multi-national corporations. From search giant US innovator Google to Shenzhen based Chinese company Huawei, which provides low cost telecom equipment - all are interested in the burgeoning India market to increase market share and boost sales. Many of the multinationals have set up research labs in India, providing jobs and incentives for advanced research. This market pull has come despite corruption in the government. With government now providing infrastructure investment, transparency in government operations becomes imperative. If not brought to the norms of developed nation standards, corruption may well prove to be a deterrent for inclusive growth.

*Entrepreneurial Spirit:* The most significant aspect of India's IT boom is the change it has wrought within India. The gen Y Indian, freed of past baggage is a new breed: hopeful, can-do and optimistic. It has shed the shackles of colonialism, self-doubt and apathy. Gen Y has the confidence to make change happen. In this sense, the young Indian is a global citizen, able to draw on India's core cultural values that have endured through time, but also partner with the world for local growth. Equally significant is the fact the young Indian owns up to the issue of generational poverty as crippling and one that India must shoulder responsibility for. Educated India can no longer wash its hands off the inequalities in the system as our feudal heritage, colonial rape or foreign vested interests. Gen Y youth owns up to it as its own to do something about.

There remain significant barriers to entrepreneurship in India: lack of venture capital, role models, capacity for risk-taking and social stigma associated with failure along with even the most reputed management institutes providing little entrepreneurship training to name just a few. Here too though change is on the horizon. IIM Ahmedabad has published stories of 25 entrepreneurs (Bansal, 2008) for inspiration and advice. Along with entrepreneurial success stories like Infosys, and Wipro - documented by Steve Hamm in Bangalore Tiger - established companies like TATA have become global innovators with the likes of the Nano Car and water filter technology.

So while it is tempting to blame convenient scapegoats: infrastructure, government, politicians, bureaucracy, corruption, reservations etc., it is also clear that blame is a luxury that is old news. An entrepreneur figures out what needs to be done and does it.



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*Success Models- Microfinance:* The microfinance sector "seems to grow and with no full-stop in sight" according to the State of the Sector Report (Srinivasan, 2009, pg 2), during troublesome times faced by mainstream financial institutions. The resilience of the microfinance sector in the face of the global economic meltdown that affected the world during the years 2008-2009, combined with its sustained performance over a sufficient period of time, provides a model for inclusive development: financially sustainable social impact. Even more importantly, it proved that India can develop its own markets and create economic empowerment for the rural poor. The microfinance success story (to the point now that it needs to evolve into the next phase of its growth) provides fertile grounds for examination to learn best practices and learn what works and what doesn't for scaling social action and change management.. The mission of financial inclusion of even the poorest of the poor ensured microfinance institutions a large, untapped client base and win-win ethos alignment with capital providers. Successful microfinance institutions were able to employ a strategy to manage risk through group loans (Counts, 1996) as well as costs by hiring local women as group leaders.

The micro-lending business model also fuelled technology innovation - traditionally considered an expensive proposition. Besides peer-to-peer network based lending platforms like Kiva (<http://www.kiva.org/>) and United Prosperity (<http://www.unitedprosperity.org/>), micro-finance benefited mobile technology growth in developing economies. Out of the success of Grameen bank grew Grameen Phone (<http://www.grameenphone.com/>) where women used mobile phones in rural areas as a business tool, not a lifestyle choice and Grameen Shakti (<http://www.gshakti.org/>) for an integrated approach to renewable energy. Software platforms for mobile phone use for social development have also emerged and some are available for free, like Kiwanja (<http://www.kiwanja.net/>) for NGO use. Government schemes like NREGA, warts and all, are still proof positive evidence of the emphasis placed at highest levels of government, to rural development.

*Timing:* In "India Unbound" (Das, 2000) predicts how India would grow into the global information age as a result of sweeping policy reforms and open markets. His analysis was correct. The economic backdrop in 2010 is significantly positive in many areas. The government has made strides in satellites, moon mission and atomic energy. Indian pharmaceuticals have been successful competitors in research as well as production. Highly successful IT services business has attracted world attention and several multinationals, from IBM and Intel to Cisco and Microsoft have set up research laboratories in India. Indian companies like

TATA have had successful foreign forays and the \$2500 Nano car with gas mileage better than popular hybrid cars, was an innovation that set a new benchmark in automobile research. Success of India Inc. has made funding possible from government sources in breakthrough research. Thus Department of Science and Technology, DST, is funding research in nano-technology, solar and other renewable energy; MHRD on education funding/reforms.

Ecosystem level indicators for innovation are also positive. The number and quality of technical conferences, festivals and conclaves has increased. There is now an emphasis in IIT's (Indian Institute of Technology) on research quality and PhD programs. New institutions like the Entrepreneurship Development Institute of India have been set up to encourage micro-entrepreneurs and help them succeed: so far of approximately 1400 people trained 69% have started their own venture (Naik, 2010). IIM Ahmedabad has started keeping metrics on entrepreneurs. Corporations are increasingly expanding their role in social responsibility (IBM even calls it corporate citizenship) even going to the extent of debating CSR (Corporate Social Responsibility) as a core part of their business strategy.

Table 1 summarizes a few of the key points to show the advantages India has.

Table 1: Advantage India

	Positive Aspect	Negative aspect	Emerging Indicators	Lagging Indicators
Human Capital	Large population under 30	-Inadequate education at all levels -No research	-New Government Initiatives -Corporate research labs	-Affordability -Student loans -Scholarships
Growing Markets	IT, Telecom Luxury goods Autos	Agriculture Infrastructure	Government initiatives like NREGA	Difficult to deploy new technology for rural issues
Entrepreneurial Spirit	Social inclusion a priority for Gen Y	-Lack of access to social capital -Low tolerance for risk	Emergence of Social enterprises	Economy still dominated by ten or so large companies
Microfinance Success	Proof positive of business as a means of social impact	Remains largely low-tech	Technology innovation like smart-cards	Has not achieved scale or become mainstream
Timing	A globally competitive, tech literate workforce	Extreme wealth coupled with extreme poverty	-Corporate research labs -Technical conferences	-Rural development -Skill development

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India still has a long way to go. C. Mohan, IBM Fellow & former IBM India Chief Scientist, says that to realize its potential, India needs some major changes. "There is no guarantee that the potential will be realized at the current course and pace (Mohan, 2010). Russia has (d) very large pool of scientists/engineers and did develop significant technologies/products but those didn't guarantee Russia innovation superpower status. France, Germany, UK have been in IT forever but never attained a significant/sustained level of innovation." Unless India capitalizes on its advantages, they could easily turn into the disadvantage of social instability

### **PRIVATE SECTOR: TECHNOLOGY AND BUSINESS INNOVATION**

Technology management alone is not sufficient to create social prosperity in developing economies. The disparity between the purchasing power of the rich and the poor is too large to be breached by market forces alone and initial market growth is quickly stalled. While very obvious in India, the issue is global; wherever the population suffers a significant economic divide. Multinationals are facing this issue head-on. Academics provide insights; the BOP being re-dubbed from market to mirage (Karnani, 2007) or less sensationally, but equally poignantly, the BOP has now become a strategy instead of market.

The key message is that the success of the critical market creation forces- lowering cost, streamlining supply chains- comes to a screeching halt upon hitting the chasm of non-existent consumer purchasing power. The market apparently vaporizes even though the product or service need is critical: price isn't low enough for the target market and efficiencies of scale cannot be reached. Red herrings come into play: technology doesn't work, social mores won't allow it, policy, corruption etc.- to further obfuscate the core issue: purchasing power disparity between developed and developing markets - be they distant or right next door- as is the case in India.

### **From Producer To Consumer**

Simply put, in a developed economy with sufficient employment and financing access, there is a beneficial disaggregation of the producer to consumer supply chain which creates healthy competition, quality products at lower costs. Conversely, in a developing economy, with its high unemployment, low skills-level and no financing available to the poor, this same disaggregation becomes a destructive force vaporizing the market into a mirage. Recognizing this, in founding the operating principles for Grameen bank, Muhammad Yunus (Yunus, 2008) says he just looked to

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see what the conventional banks were doing and went ahead and did the opposite.

The solution lies in getting the market forces back into alignment: with the poor becoming producers of value first and eventually becoming consumers capable of capturing more value of their output. Skills training, capital procurement becomes the strategy for BOP market development. Thus business model innovation often becomes the first critical enabler for penetrating underdeveloped markets in emerging economies, to be followed by technology innovation if all goes well. In developing markets, social prosperity i.e. skills development and good health comes first, economic prosperity follows. In developed markets, things are a lot easier - economic prosperity alone can lead to social prosperity since basics like education and healthcare are already being managed.

### **A Model to Emulate**

The biggest social impact innovations have been in mobile phone industry (The Economist, 2009). First, business model innovation (prepaid vs. post-paid, SIM cards), created access for the less wealthy. A whole new (larger) market was created where the phone becomes a business investment (a producer of value), not a lifestyle choice (a consumer of value). BOP market forces created the incentive for developing-economy-appropriate-cost hardware technology innovation, which allows leapfrogging land-line technology in rural and remote areas. Emerging software platform innovations for productivity enhancement, like Project Market Light, ([http://thomsonreuters.com/content/press\\_room/reuters/reuters\\_pr\\_3112](http://thomsonreuters.com/content/press_room/reuters/reuters_pr_3112)), which directly communicate consumer need to producer farmers, improve distribution. Thus as a result of serving the BOP market, the entire mobile phone industry, globally, has seen growth that far outstrips growth in other industries.

Spillover-Effect: When market and technology development are managed hand in hand a virtuous cycle of development (instead of a destructive one) is created whose impact crosses industry boundaries. Continuing with the mobile industry example, its cycle of virtuous development is now providing acceleration to innovation in the energy sector. Witness the emergence of Vihaan Networks Ltd (VNL), the Indian telecom company whose solar powered base station can be built for one-tenth the cost of a regular one, is profitable at just \$2 of revenue per user per month and will go to market in India, Africa and Southeast Asia. Fastcompany (<http://www.fastcompany.com/>) includes VNL in the top 50 most innovative companies saying: "Consider the last mobile mile problem

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solved". Rural communities that lack grid power are now in mobile range—thus creating a whole new mobile user market not accessible to traditional development. The solar powered global-satellite-mobile (GSM) system is cheap (\$15,000), green (requires only as much energy as a 50 watt light bulb and produces zero emissions), efficient (in 6 hours the equipment can be assembled on a rooftop by a non-expert) and provides service to 2000 users in a 2 mile radius (Fastcompany, March 2010, page 92). VNL is one among 26 global firms selected by the World Economic Forum as "Technology Pioneers 2010" -- the most innovative start-ups from around the world that will have a critical impact on the future of business and society.

India presents a microcosm of development issues faced the world over, but has the advantage of a growing market and a large untapped talent pool. Like VNL, an outcome of a development strategy that addresses local markets will result in innovation that is globally applicable and it may well be that India emerges a world leader in sustainable development.

#### **THE ROLE OF GOVERNMENT**

In India, market forces alone cannot generate the acceleration in innovation required for sustainable growth. A robust market requires a robust workforce. Imagine, in 12 short years, if every child passed a high-school level education and every man, woman, child avoided (or quickly recovered from) ill health, India would have a workforce that participates in development, instead of being an economic burden and a social cripple. In realizing this dream, the government has a critical role to play. Private sector expansion into education and healthcare will be too slow since in these businesses market forces lag business development. Government, on the other hand, with its countrywide clout, can provide a readymade, instant platform that will allow for scale and bolster entrepreneurship success. If Stage 1 is the BOP, with a business and market expansion focus, and stage 2 is the Flat World (Friedman, 2006) with its job focus and the supremacy of the knowledge worker un-tethered by geography, stage 3, is the partnership era where the government and business, complement one another instead of just working alongside each other. In this model, with a blurring between public and private sector, profit and philanthropy, each institution can focus on its strength while relying on a partner to fill the gap. In this scenario, corporate social responsibility evolves from compliance to proactive involvement in a global agenda; governments change their role to move beyond regulation to harness markets to solve entrenched local problems of poverty and non-profits become more effective by showing less activism and more pragmatism in carrying out their social agenda.

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Therefore, the government needs to move beyond protectionism and policy to build market forces and infrastructure.

The Business needs to move from philanthropy and compliance to active participation in the social agenda.

Non-profits should move from activism to a pragmatic approach which includes, partnership to provide local services, and consolidation.

*Micro-franchising:* The success of the microfinance industry positions the government well for expanding rural entrepreneurship through the micro-franchising model. Boond (<http://www.boond.net/aboutus.php>), which means a drop in Sanskrit, started with a mission: reach 1 million individuals with light, clean water and pest control by 2012. Given the ambitious scale, Boond is a micro-franchise model: a Boond Kit (consisting of a solar lamp, water purifier, mosquito net), a micro-entrepreneur called Boond officer to sell the kit in remote/rural areas. Transportation, product costs and commissions are built into the financial model to create a self-sustaining model that can be replicated across all geographies with similar characteristics. Financing the micro-franchise is a critical piece of the equation as is managing the risk/expense of transportation to remote/inaccessible areas. Boond started as a movement, with volunteer founders, fuelled by the power of its mission Boond works with local microfinance institutions and NGOs on its way to sustainability, but its founders face tremendous personal and financial risk, above and beyond those faced by a regular franchise because of the social mission.

Low-startup-cost, low-skill requiring replication of a business model by local micro-entrepreneur is the key concept behind micro-franchising. It may well turn out to be the fastest development tool for the BOP because of its potential for scale.. However, even though the concept has been around for over a decade, stories of successful scaling, in spite of many people trying, are hard to come by.

At this time, micro-franchising is being approached as a purely entrepreneurial business activity with academics providing thought leadership (BYU Marriott School). Micro-franchising starts with social entrepreneurs like the Boond founders at great initial risk. Government can play a role in micro-franchising model by mitigating some of the extraordinary risks; e.g. through new financing models e.g. State Bank of India financing microfinance institutions, or providing security across state borders or known areas of insurgency (<http://boond.net/blog/?p=9>).

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## CONCLUSION

Inclusive development for India means having a technology management strategy that harnesses the latest technologies where appropriate and at the same time rejects technologies that are marginally beneficial, or benefit the wealthiest segment at the expense of the poor. Such a strategy would:

1. Establish the need for change
  - It's a change in mindset - because after all why change? India is a great growth story
  - Be global but think local to create urgency; changes priorities in investment of capital - to basics like education, healthcare which realise returns long term; overlooked by business because of policy or other government mandate
2. Create technology plus business model innovation
  - Fosters research, creativity
  - Creates jobs; builds market forces by creating producers before consumers
  - Mitigates entrepreneurship risks
3. Create public-private partnerships
  - Allows initial scaling that later can build market forces for scale
  - Promotes growth that creates sizeable middle class - often considered the base of power for any nation as well as the hallmark of civilization

The potential to position India as a world leader in sustainable development not only exists, it must be harnessed. If not, given the scale and proximity of extreme wealth with extreme poverty, India faces the possibility to self-destruct or at minimum, lose growth momentum.

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