

# Disruptive Innovations : A Key to Innovative India

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**KEY WORDS:**

Innovation, Disruptive Innovation, Indian Scenario, Business Implications, A Key to Innovative India.

**Abstract:** Disruptive technology and disruptive innovation are terms used in business and technology literature to describe innovation that improve a product or service in ways that the market does not expect, typically by being lower priced or designed for a different set of consumers.

This paper throws light on disruptive innovation took place in India and scope for future innovation, this paper conclude that to becoming innovative is not to introduce new techniques of innovation, but to unlearn the once that block innovation. Managers should innovate naturally.

**Introduction :** "Innovation is the specific instrument of entrepreneurship. The act that endows resources with a new capacity to create wealth" so said great Management Guru Peter F. Drucker. Innovation is the central issue in economic prosperity. Never before in history has innovation offered promise of so much to so many in such a short time. The Global Innovation Index published in March 2009 ranked a total of 110 countries. Singapore is occupying Rank 1 with overall score of 2.45. India is occupying Rank 46 with overall score of only 0.06. This clearly indicates that we have large scope for improvement on this front in order to be a globally competitive innovative country. In order to achieve this, we need to give a kick-start to innovations in general and disruptive innovations in particular of every possible kind across all the sectors of the economy. This paper deals with disruptive innovations in the Indian context that would create new (and unexpected) markets by applying a different set of values. (e.g. Nirma, Arvind Eye Care, Amul, Fair & Lovely) Such innovations would change the very face of India in the near future.

**Innovation:**

Whereas an invention is the first occurrence of an idea, an innovation is its implication. The implementation may occur due to a disciplined, targeted and process-oriented approach or may be the outcome of a natural and intuitive approach or ingenuity. According to Merriam-Webster, innovation is :

1. The Introduction of something new.
2. A new idea, method or device.

Innovation may refer to incremental and emergent or radical and revolutionary changes in thinking, products, process or

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organisations. Following Schumpeter (1934), contributors to the scholarly literature on innovation typically distinguish between invention, an idea made manifest and innovation, ideas applied successfully in practice. The goal of innovation is positive, change to make someone or something better. Innovation leading to increased productivity is the fundamental source of increasing wealth in an economy. Innovation is the most important thing for the human survival. Innovation is an important topic in the study of economics, business, design technology, sociology and engineering.

In the Indian context, the draft of The National Innovation Act of 2008 is ready. The said Act once passed will facilitate public, private or public-private partnership initiatives for building an Innovation Support System to encourage innovation, evolve a National Integrated Science and Technology Plan and codify and consolidate the law of confidentiality in aid of protecting confidential information, Trade Secrets and innovation. The Act defines Innovation as a process for incremental or significant technical advance or change, which provides enhancement of measurable economic value and shall include:

1. Introducing new or improved goods or services.
2. Implementing new or improved operational processes and
3. Implementing new or improved organisational / managerial processes

Measurable value enhancement or economic significance may include one or more of the following :

1. Increase in market share
2. Competitive advantage
3. Improvement in the quality of products or service.
4. Reduction of costs

The definition of Innovation has intentionally been limited to

processes directed towards achieving technical advance. Such processes are distinct from the new and innovative technology or advance achieved as a consequence of the Innovation. Although such technology may comprise a new product or even a new process, said new product or process could be protectable under the laws of intellectual property and are not to be confused with the "Innovation" process of this statute.

The Department of Science & Technology (DST) Govt. of India has helped in establishing the National Innovation Foundation (NIF) of India on 28/02/2000 with the main goal of providing institutional support in scouting, spawning, substituting and scaling up grassroots green innovations and helping their transition to self supporting activities. For the last seventeen years the Honey Bee Network and Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) have been scouting innovations by farmers, artisans, women etc. at the grassroots level.

Gujarat Grassroots Innovations Augmentation Network (GIAN) scales up innovations from the Honey Bee Database of innovations through value additions in innovations to sustain creativity and ethics of experimentation. GIAN was conceived at the International Conference on Creativity and Innovation at Grassroots (ICIG) jointly organised by IIM-Ahmedabad and SRISTI. The Honey Bee Database of 10,000 innovations collected and documented by SRISTI would be part of the National Register of Innovations to be managed and supported by NIF. The areas covered in the innovation database include plant variety, utilities and general machinery, farm implements, energy devices, agricultural and traditional knowledge practices, livestock management, herbal remedies, bio-diversity examples, innovation concepts and ideas.

Some of the examples of Indian Innovations are as under :

1. **The Dabba-Wallas of Mumbai** : It is the world class operation; 5000 semi-literate persons distributing 2,00,000 tiffin boxes every day, at Rs.250/- a month almost with Six-Sigma accuracy.
2. **Lijjat Papad** : Started by seven housewives on a roof-top, now has 40,000 working women and turnover of Rs.300 Crore. It is the individual housewives making papads, centralized collection, packing and distribution into every corner of India. It is phenomenal; the involvement of communities !.
3. **Field Turf** : Mr.Anil Kumar has developed a next generation artificial grass that looks like grass, feels like grass and is maintenance free. It is made from eco-friendly recycled plastic. No watering is required. Over five lakh square feet of field turf is already installed. Application areas are sports fields, home & corporate office rooftops, heavy traffic areas, clubs, balconies etc. An innovation that is transforming urban spaces in India and opening up totally new avenues of businesses, sports and landscaping.
4. **Saree Innovations** : Think of South India and Silk Sarees invariably come to mind. Most of the significant innovations in Silk Sarees are done by Sri Kumaran Silks in Chennai.

1. The Saree-Shirt Combo – Saree is designed with a matching Shirt-piece meant for the lady's husband.
2. The Colour Changing Saree – When the wearer of the saree moves out of her home, the colour of saree changes.
3. The Pocket Saree – This saree has a pocket which can hold a cell phone and other small items.
4. The Denim Saree – It is a pure silk Saree that gives the look of Denim.
5. **Nano Ganesh** : Santosh Oswal, the son of a farmer has developed Nano Ganesh, a modem, which coupled with a mobile phone, is connected to the Starter mechanism of the Ubiquitous Water Pump, making the long march of the farmers to their water pumps in remote locations unnecessary. Santosh Oswal has bagged the first prize at Nokia's Cell Innovations Challenge in Barcelona. His current turnover stands at a modest Rs.2 Crore. He is planning for Rs.100 Crore investment and expects revenues worth Rs.350 Crore this fiscal.

### Disruptive Innovation:

Disruptive technology and disruptive innovation are terms used in business and technology literature to describe innovation that improve a product or service in ways that the market does not expect, typically by being lower priced or designed for a different set of consumers.

Disruptive innovations can be broadly classified into low-end and new-market disruptive innovations. A new-market disruptive innovation is often aimed at non-consumption (i.e. Consumers who would not have used the products already on the market); whereas a lower-end disruptive innovation is aimed at mainstream customers for whom price is more important than quality.

Disruptive technologies are particularly threatening to the leaders of an existing market, because there is competition coming from an unexpected direction. A disruptive technology can come to dominate an existing market by either filling a role in a new market that the older technology could not fill (as cheaper, lower capacity but smaller-sized flash memory is doing for personal data storage in the 2000's) or by successfully moving up-market through performance improvements until finally displacing the market incumbents (as digital photography has largely replaced film photography).

In contrast to "disruptive innovation", a "sustaining" innovation does not have an effect on existing markets. Sustaining innovations may be either "discontinuous" or "Continuous" (i.e. "revolutionary" or "evolutionary"). Revolutionary innovations are not always disruptive although the automobile was a revolutionary innovation it is not a disruptive innovation, because early automobiles were expensive luxury items that did not disrupt the market for horse-drawn vehicles. The market remained intact until the debut of the lower priced Ford Model T in 1908.

The term disruptive technology was coined by Clayton M. Christensen and introduced in his 1995 article Disruptive Technologies : Catching the Wave, which he wrote with Joseph

**Table 1 : Examples of Disruptive Innovations:**

Sr.No.	Disruptive Innovation	Displaced or Marginalized Technology	Notes
1.	Desktop Publishing	Traditional Publishing	Early Desktop Publishing systems could not match high end professional systems in either features or quality. Nevertheless they lowered the cost of entry to the publishing business and economies of scale eventually enabled them to match and then surpass the functionality of the older dedicated publishing systems.
2.	Plastic	Metal, Wood, Glass	In the 21st Century, plastics can be used for nearly all household items previously made of metal, wood and glass.
3.	TV / Home Cinema	Movie Theaters	Colour TV, HDTV, and Home Cinema systems have become ubiquitous, while cinema technologies such as Cinemascope, 3D Cinema, IMAX and THX have had limited Commercial success
4.	Digital synthesizer	Electronic Organ and Piano.	Synthesizers were initially low-cost, low-weight alternatives to electronic organs and acoustic pianos. Today's synthesizers feature many automated functions and have replaced them for home and hobby users.
5.	Word Processor	Typewriter	Flexible word processors with high quality printers have superseded typewriters in all but the simplest applications or where electrical power is not available and manual equipment is the only practical alternative to pens and pencils.

Bower. He describes the term further in his 1997 book 'The Innovator's Dilemma' In his sequel, The Innovator's Solution, Christensen replaced disruptive technology with the term disruptive innovations because he recognised that few technologies are intrinsically disruptive or sustaining in character. It is the strategy or business model that the technology enables that creates the disruptive impact. The concept of disruptive technology continues a long tradition of the identification of radical technical change in the study of innovation by economists and the development of tools for its management at a firm or policy level.

**Indian Scenario :** The Indian genotype is unique, especially so in its ability to innovate. This is because innovation requires four C's : Chaos, Creativity, Communications to generate ideas and channelisation to convert them into real products. India has the first three, but needs to strengthen the fourth. Further our plurality in terms of culture, religion, language and more is a great asset. This country was as (Late) Mr.C. Rajgopalchari said, a civilisation without governments for 5000 years before the Mughals and the British arrived. Prof.Anil Gupta of IIM-A argues that natural innovativeness exists at the grassroots of our society. It occurs by imitating the principles of innovation witnessed in

nature :- Simplicity, Frugality, multi-functionality and diversity. Here are some of the examples of disruptive innovation in the India context.

- Nirma :** Context was a key factor in the story of how, 25 years ago, Karsanbhai Patel of Nirma came to pose a question : Why should a kilo of detergent cost Rs.15. By developing Rs.5 per Kg. detergent, he turned Nirma into a business that sold million tons of products annually within 15 years of its launch.
- Arvind Eye Care :** A cataract operation costs \$1500 in a U.S.Hospital, but costs \$12 here including the cost of Lens.
- Amul :** It is completely new way of transacting business. Instead of putting all cows and buffaloes in one shed as in USA, it is the individual housewives milking cows, centralised collection , centralised modern milk processing and distribution into every corner of India. The social impact unleashed by Amul – gender equality, economic liberalisation, rural self reliance is unmatched by any standards. Amul was a disruptive innovation.
- Fair & Lovely :** Fair & Lovely was also a disruptive innovation, in so far as it was an exceptional utility for a latent desire. It is not relevant here whether that desire was legitimate and

whether it was right for commerce to satisfy it. Let us focus on the simple insight that led to Fair & Lovely : billions of dollars are being spent trying to make fair-skinned people just a bit darker (think of sun-tan industry), so why not spend a few hundred dollars trying to make dark skinned people fairer ?

5. **Nano Car** : Tata Motors has launched world's most economical car with a price tag of Rs.One Lac per Car. It conforms to Euro-IV or Bharat-III emission norms. A married couple carrying two kids on a motorbike in most unsafe condition in city-traffic was seen by Tata Motors Chairman – Mr.Ratan Tata. Then and there itself, he threw challenge to his team to design a car within Rs.One lac budget and got astonishing results.

**Business Implications:** Disruptive technologies are not always disruptive to customers and often take a long time before they are significantly disruptive to established companies. They are often difficult to recognise. Indeed, as Christensen points out and studies have shown, it is often entirely rational for incumbent companies to ignore disruptive innovations, since they compare so badly with existing technologies or products and the deceptively small market available for a disruptive innovation is often very small compared to the market for the established technology.

Even if a disruptive innovation is recognised, existing businesses are often reluctant to take advantage of it, since it would involve competing with their existing (and more profitable) technological approach. Christensen recommends that existing firms watch for these innovations invest in small firms that might adopt these innovations and continue to push technological demands in their core market so that performance stays above what disruptive technologies can achieve.

Disruptive technologies, too, can be subtly disruptive, rather than prominently so. Examples include Digital photography ( the sharp decline in consumer demand for common 35mm Print film has had a deleterious effect on free-riders such as slide, infrared film stocks, which are now more expensive to produce) and IP/Internet Telephony, where the replacement technology does not, and sometimes cannot practically replace all of the non-obvious attributes of the older system (sustained operation through municipal power outages, national security priority access, the higher degree of obviousness that the service may be life safety critical or deserving of higher restoration priority catastrophes etc.)

**A Key to Innovative India** : Radical or disruptive innovations attempts to develop new products, services, processes or business models for the market, which have the potential to transform the economies of the business and disrupt the established players. It is this kind of innovation that will transform the very face of Indian economy in the years to come.

In the post independence era 1. After-effects of 'Nehruvian Economics' 2. Disregard for Intellectual Property 3. Skewed Educational System 4. Lack of data 5. Lack of Risk Capital 6. Limited Industrial Clusters 7. Low Risk Appetite for intangibles were the factors that have had a negative impact on the innovativeness of India Inc. But the Indian Industry is at a

threshold where it can unleash innovation, as these same factors are changing for better and the present global economic environment favours the country.

### Way Ahead :

1. **The Indian Market** : One vital factor/opportunity that has the potential to counter balance all the negative factors affecting the innovation efforts in India, is the country's vast low-end market for products and services. Compared to developed countries, India's low-end market segment is extremely low in terms of per-capita income and lifestyle. However, the size of this market is bigger than the total market in several large countries. In 'The Innovator's Dilemma' Clayton Christensen proposes the theory of disruptive innovation. Disruptive innovations invariably take place at the low-end of the market or in a new market that never existed before. Companies can disrupt at the low-end of the market through low cost business models that grow in strength by picking off the least attractive of the established firm's customers. New market disruptions induce incumbents to flee the attack. Significantly, many large companies are wary of low-end disruptions primarily because such disruptions typically do not command high margins and market size to start with. Owing to this, incumbents focus their efforts on increasing their profitability and margins by concentrating more and more on high value consumers/businesses. However, in India these disruptions can makeup for the loss of margins with volumes. In the developed market, companies tend not to innovate too much at the low-end, as the market size of the low-end segment, with a few notable exceptions, is limited. India scores heavily on this count as the huge market in India is essentially low-end with customers (80% of demand is to come out of middle or lower segment source : Mckinsey study in 'The Right Passage to India' ) who are being poorly served and hence a very fertile ground for profitable low-end disruption.
2. **Founder-Led Businesses** : One factor, which does not look too good for corporate governance but will contribute greatly in creating a culture of innovation in firms, is the presence of huge number of family owned businesses in India. In countries with highly developed Capital Market, the market pressures of meeting the quarterly estimates of growth and profitability have led to corporate actions focused on short term growth, whereas innovation requires a long term perspective. In addition the shorter tenure of corporate leaders and democratic style adopted by professional managers lead to near term safe initiatives by corporate leaders whereas innovation efforts often call for bold initiatives and persistence. The founder led and family owned businesses in India, are ideally suited to drive innovation because they can go in for long term initiatives without being unduly perturbed on packaging their initiatives for the approval of the Board or the Financial Market. Innovation needs high profile champions who can drive initiatives within the company. A leader of a family owned business has an advantage in inculcating innovation amongst the rank and file because the leader has

the requisite political clout and the self confidence to over ride established processes in the interest of pursuing disruptive opportunities.

3. **Lack of System Legacy** : Flexibility in systems and thinking is the primary factor for innovation to bear fruits. A large majority of Indian corporate houses are not tied to proprietary systems or technologies and can rapidly adopt and role out new technologies. This provides a base for generating disruptive innovations through skillful utilisation of technology and systems. As Nicholas Carr in 'Does it Matter?' notes, "When it Comes to it, the tortoise often beats the hare" . This is a distinct advantage that India Inc. possesses. Most companies in India have not aggressively invested into technology/systems and thus are at an apt stage for adopting proven and cost effective technologies.
4. **Social Diversity** : India's great societal diversity, be it language, ethnic or culture makes for a heady combination for the cross-pollination and fertilisation of ideas that breed innovation. Blending indigenous knowledge with modern science has the potential to develop new technology / products. Indian Industry and academia can also tap the invaluable experiences and contacts of expatriate Indians who have been part of innovation business abroad. Over 30% of Silicon Valley starts ups are backed / founded by Indians. (Source : SEBI Report on Venture Capital in India)
5. **Quest for Knowledge** : Indian society is notable for its appreciation and quest for knowledge. The quest for knowledge forms bedrock for the growth of a knowledge-based society that can leverage knowledge as a tool for rapid innovation.

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### Conclusion:

Programmed innovation is a perfectly good way to go, but the ultimate goal should be to liberate the innovation gene inside a person, a company, an organisation. The key, therefore, to becoming innovative is not to introduce new techniques of innovation, but to unlearn the once that block innovation. Managers should innovate naturally. India may not yet figure in any global list of innovative countries, yet the number, the variety and the spread of innovations across the land are striking. Our challenge is to build on this legacy of creativity. Destiny awaits us.

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