



Book Review

Frugal Innovation: How to Do Better with Less

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Publishers: Hachette India (on behalf of The Economist, London), 2015

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This book explores the DNA of innovation in a world becoming increasingly aware of the existentialist predicament of mother earth through reckless exploitation of its natural resources. The research, carried out through a series of case studies, has conjured up a set of six principles that govern the frugal innovation paradigm. These principles can be the basic building blocks in encouraging innovation in any organization; this is perhaps the most significant contribution of this book.

The authors argue that significant macro-changes have been pressurizing the developed world to re-view its resource-intensive life-styles and production-processes to innovate best-in-class, affordable, sustainable and high-quality products and services with the use of minimal resources in less time. The first principle of frugal innovation is 'engage and iterate.' This call for the researchers to rush out of their ivory towers to observe the customer-behavior in the natural environment to be able to create products and services that caters to the specific needs of the customers. The second principle is 'flex your assets' where the focus is to deliver more value to the customers through the use of modern technologies and gadgets (Examples cited are robotics, 3-D printing, social manufacturing etc.). This principle also envisages more output from the manpower by leveraging on technological gadgets as well as making the organization more simple and agile. The third principle is 'creating sustainable solutions' where the focus is on recycling of materials, and creating waste-free products. The fourth principle is 'shaping customer behavior' where the emphasis is on insights to customize products and services through experiential approach as also on positioning the outputs of frugal innovation to enhance brand loyalty and market share that results in the consumers feeling richer while consuming less. The fifth principle is 'Co-create with prosumers'; here the emphasis is enhancing consumer engagement and brand affinity through co-creating value for all. It describes how co-

creation and crowd-sourcing can help harness the collective wisdom and skills of consumer communities that require a drastic shift in mindset from research and marketing. The sixth principle, 'making innovative friends,' deals with networking. Enterprises need to collaborate with value-chain partners to develop frugal products, services and business models more efficiently. The authors emphasize the need for an appropriate culture to foster frugal innovation; they have listed some tips in this direction also.

The strength of the book is that it is based on a large number of case-studies; it enhances the authenticity of the discourse. However almost all the cases are from the first world. This has a limitation: the book is deficient in capturing the ground reality of the third world. In the first world, the necessity for conserving the resources and the necessity to innovate products and processes of low-resources-intensity are triggered on moral and intellectual grounds. For most of the MNCs, frugal innovation is a means towards competitiveness; not necessarily a means of survival. In the third world, on the contrary, resource crunch is far more severe and hence the need to develop products and processes of low-resource-intensity is an existential necessity. This fundamental difference makes the search for frugal innovation much more essential in the third world. This aspect does not seem to have captured attention of the authors.

The development of the first world is the result of the industrial revolution that happened in the second half of the second millennium. As front-runners of development they never experienced shortage of resources. The oil-crisis of 1973 was perhaps was the first jolt to this paradigm. This can be seen as one of the major landmarks in the process of 'power-shift' that Toffler¹ has predicted. Predictions of the Club of Rome² had also sounded the warning bells on the reckless exploitation of the earth's resources. All these factors have created some modest



competitive pressures on the developed countries and the MNCs to innovate more 'acceptable' products. The focus of this book has been on this aspect.

The predicament of the third world has been quite different and distinct. These economies could not afford most of the products, processes and technologies that the developed countries had developed. So they had to explore innovations to create products that are acceptable to their context. Many of the industries in India (Paper, Textiles and process industries) are built on the strength of machinery discarded by the west. Import of second-hand machinery and extending their life were common in these sectors. Don't these qualify to be termed as frugal innovation? The authors mention about an economy car being built in Eastern Europe and marketed, by Renault, at a price less than US\$ 6000. Tata Motors developed and put in market a car that was priced at about US\$ 2000 in 2009³. More than just the cost reduction, it is a classic example of innovations in design, manufacturing and financing. 'Jaipur foot'⁴ is another example of frugal innovation. Aravind Eye Hospital⁵ has been conceptualized and nurtured to provide affordable eye-care to the teeming millions of poor and semi-literate people of India. There cannot be a better example for the concept of 4-As propounded by Jagdish Sheth⁶. Grameen Bank is another example of innovation by Prof Mohamad Yunus⁷ in Bangladesh to provide banking (micro-finance) facilities and livelihood to the bottom-most level of the population who were otherwise untouched by most of developmental initiatives. Vijay Govindrajan coined the concept of 'Reverse Innovation' for creating innovative products in the underdeveloped world and exporting them to the developed world⁸. Last year India spent \$74 million on Mars Orbiter Mission (MOM) compared to the NASA's spend of \$671 million on its Maven Project⁹. Was not this a case of frugal innovation on a global scale?

Many more such examples of frugal innovation can be cited in the third world, if only the authors had shifted their focus appropriately. The alchemy and DNA of these innovations are most likely to be distinct from what the authors have captured through their research. In short, the book represents the perspective of frugal innovation from the developed world. The perspective of the underdeveloped world remains to be captured by the authors.

These observations should not be treated as belittling the efforts of the authors. The book is well endowed with structure, style and content; rich in its research findings; above all very

readable. The only point to be added is that the domain of frugal innovation is incomplete without the innovations happening in the third world.

End Notes:

1. Alvin Toffler (1980): Power shift, Bantam Press

2. Donella Meadows et al (1972): The Limits to Growth. A Report on The Club of Rome's project on the predicament of mankind. Universe Books, New York. The project commissioned by the Club of Rome and funded by Volkswagen Foundation explored the sustainability of the earth through computer simulation. Five variables were examined namely world population, industrialization, pollution, food production and resource depletion. The report concluded that if the present trend continued the world would come to a stage of collapse in less than a century. The report has been criticized heavily for its deficiencies. The report was revisited after 30 years only to find that warning signal served by the original report had not resulted in any significant change in the life-style of the people of the earth nor its resource depletion. See http://www.greatchange.org/ov-simmons.club_of_rome_revisted.pdf

3. Tata Motors Ltd, launched the Tata-Nano car in 2009 at a price tag of INR 100,000 (less than US\$ 2000 at prevailing exchange rates) as an affordable city car for the burgeoning middle-class of India. Despite the euphoria of making it affordable at the unbelievable price-tag, the product did not become an instant success. The company reworked on the product and has come with a product in 2015 with better features and better aesthetics at a price-tag of INR 210,000 to INR 300,000 (US\$ 3500 to US\$5000 at prevailing exchange-rate) which should still be the envy of the world.

4. Jaipur Foot: A prosthetic foot in the US (SACH foot) averages \$8000. The Jaipur Foot is customized to the active life of the poor in India and costs only \$30. See (a) Jaipur Foot Challenging Convention. A report prepared by Scott Macke, Ruchi Mishra and Ajay Sharma under the supervision of C K Prahlad. The University of Michigan Business School, 2003.

<http://www.bus.umich.edu/FacultyResearch/ResearchCenters/ProgramsPartnerships/IT-Champions/JaipurFoot.pdf> and (b) A P Arya et al (1995): A biomedical comparison of the SACH, Seattle and Jaipur feet using ground reaction forces. *Prosthetics and Orthotics International*, 1995, 19, 37-45. www.oandplibrary.org/poi/pdf/1995_01_037.pdf

5. Aravind Eye Hospitals is a chain of affordable hospitals with corporate office at Madurai, India. This chain is the result of the modest initiative of Dr G Venkataswamy, a retired eye-surgeon from government service with the motto of eradicating cataract from among the poor people of India. Till 2012, it has treated 32 million patients and carried out 4 million surgeries, most of them at extremely low charges or for free. This has made the entity the most effective eye-care provider of the world. The chain also runs a facility for making IOLs (Intra Ocular Lens) which has emerged the largest such facility in the world. Many case-studies have been written on Aravind Eye-Hospital See Joe Tidd, John Bessant and Keith Pavitt : Aravind eye Clinics. <http://218.248.31.202/librarymain/files/casestudies/AravindEyeClinics.pdf>

6. Jagdish Sheth & Rajendra Sisodia (2006) : 4 A's of Marketing; Creating Values for Customers, Company and Society. Routledge,

7. Michael J Papa, Arvind Singhal, Wendy S Papa (2006): Organizing for Social Change; a Dielectric Journey of Theory and Praxis. Sage Publications.

8. Vijay Govindaran and Chris Temble: Reverse Innovation: Create far from Home, Win Everywhere. www.s4.amazonaws.com/ebsp/pdf/reversedinnovation.pdf

9. Mars Orbiter Mission of India, in 2013-14 was a \$74 million project. At about the same time NASA's Maven Project had costed \$671 million. Prime Minister Modi stated that India spent less than what the Hollywood producers had spent (\$100 million) on the movie 'Gravity'. <http://blogs.wsi.com/indiarealtime/2014/09/23/how-india-mounted-the-worlds-cheapest-mission-to-mars/>