By Sudhir Patwardhan,
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BOOK REVIEW - 7 DREAMS TO REALITY: TRANSFORMING INDIAN MANUFACTURING

PROF. SHOJI SHIBA

Padmashree Prof. Shoji Shiba, who was awarded The Deming Prize for individuals in 2002, for his outstanding contribution to Quality Management Methods, takes us through a wonderful, 210 page journey of seven success stories, indicating that a new Indian way of manufacturing is emerging. The purpose of the book is to inspire Indian organizations and managers to adopt the principles of Breakthrough Management to meet the future challenges posed by the world experiencing 10 X changes. Prof. Shiba wishes “to ignite a passion about manufacturing in the country”, and uses the word “manufacturing” in a far wider context.

The purpose is achieved extremely well. I am sure the readers will enjoy the book as much as I did.

The stories in the book are unfolded just the same way as the philosophy it emphasizes: using the Breakthrough Management “70-30 Rule": 70% Practice & 30% Knowledge, and “Learning by Doing”. The description of how exactly the Godrej & Boyce Team and Sona Koyo Team developed and marketed innovative products “Chotukool” and “EPM” respectively is very interesting and educative. Likewise, how the teams “dived into fishbowl” rather than “observing the fish from outside” to reach target customer by identifying their needs, adopting emerging technology and innovative distribution systems through breakthrough ideas is fascinating. Prof. Shiba explains the seven factors of organizational change, and illustrates how an organization can be transformed using the example of Godrej’s Shirwal Factory. The book then takes you outside the four walls of the organization to interact with the organization’s profit-critical stakeholder: the Supplier. Creation of trust based relationship, painstakingly nurtured, leading to win-win advantage has been lucidly explained using the example of

Gabriel India and two of their suppliers - Vinsar Elastomers, and Hosur Steel. The point that strikes you the most is that of “Do and then Demonstrate”. The author explains how to design and establish three critical flows: Procurement > Production > Delivery, and the business benefits that follow. The case of business transformation of Paragon, a single-source supplier of Sona Koyo is indeed outstanding. It has been described in detail so that the reader can really understand (and learn how to apply) the four stages of business transformation – from “mind-set change” to “gaining tangible and intangible business results”.

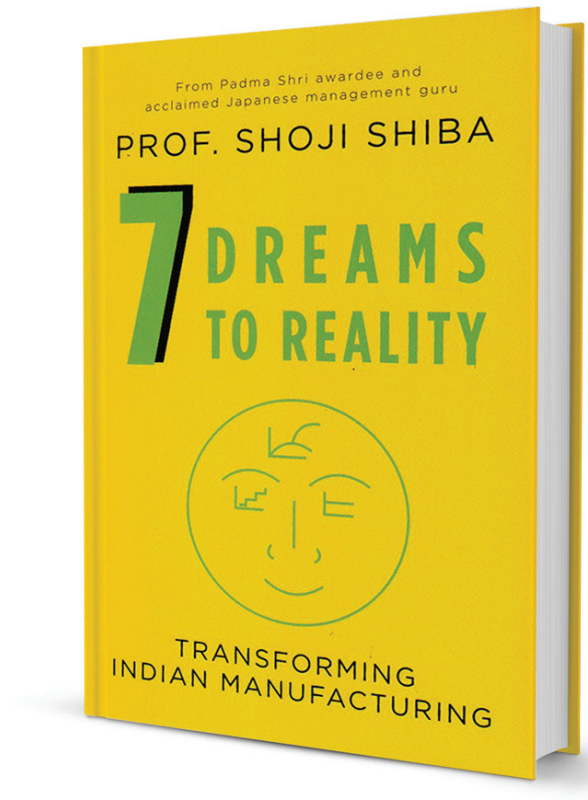
The book is rich in concepts and principles underlying Breakthrough Management. Sample these: “Success is the first step towards failure” emphasizes need to destroy current success, or “Start at the periphery… snow always melts at the periphery” reminds us that revolutionary changes always begin at the edge of chaos! The book also has some sharp and direct observations about Indian managers. For example: Indian managers talk, talk and talk (TTT)… so the author recommends a slogan: “Listen, Listen, Listen”. So very true! But Prof. Shiba also gives credit to Indian thinking when he refers to VLMi (Visionary Laghu-Udyog Mitra-Mandal), a community learning initiative, as “quintessentially Indian approach. something I had not thought about and, frankly, is completely out of my ability to do.” He goes on to explain that community learning works best when suppliers have a common goal, are co-located, and work in a non-threatening environment. However, the book’s narration would have been livelier and the purpose reinforced, had the author included a few pictures of people, products or processes. Perhaps the author had his own reasons for it.

One of the striking features of the book is three eyes of the Buddha, beautifully illustrated using a simple sketch.The third eye represents a quantum leap in thinking and application. To my mind the third eye (like the Lord Shiva’s) also represents destroying the present so that the Innovative Future is born!

Emphasizing integration of thinking and doing at all levels of hierarchy, the book is an excellent read for the thinking doers of Indian Industry.

Sudhir Patwardhan is a practicing Management Consultant; his interests being Management of Supply Chains, Projects, New Product Design Systems and Kaizen. He has consulted with companies in sectors like Construction, Health and Engineering.

B Tech – IIT Kanpur, MS – USA, he is a Godrejite having worked with us for around 25 years. Apart from being a great trainer and an academic, he engages himself in social work through Rotary.



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By G. Sunderraman,
Corporate Development

PROFESSOR
SHOJI SHIBA

I consider myself privileged to write this brief introduction of Prof. Shiba. By any standards, he is an outstanding teacher, a great mentor and a transformational leader. He is truly multifaceted, having distinguished himself in research, academics, practice of quality management, and being a crusader for globalizing of TQM. Prof. Shiba is a deeply committed facilitator for establishing a breakthrough program – Visionary Leadership for Manufacturing in India (VLFM). He believes, by transforming Indian manufacturing, higher living standards could be experienced by millions of our youth.

In India, Prof. Shiba has rendered a yeoman service by establishing in 2006 the program of VLFM, a collaborative program between Japan and India at the behest of our Prime Minister Dr. Manmohan Singh and Mr. Shinzo Abe, the then Prime Minister of Japan. In January 2012, Prof. Shiba was conferred upon the Padma Shri by the Government of India for his contributions to Indian Industry and strengthening India-Japan ties.

One of his great achievements in India was to bring together the three main stakeholders who can transform a nation - Industry, Academia and the Government. With his strong conviction, he has been able to make these three bodies partner for the transformation of the Indian manufacturing sector through the VLFM Programme. IIT – Kanpur, IIT – Madras, IIM – Calcutta, NMCC, MHRD and CII are the partners for this programme. Close to one thousand young leaders from 330 companies have participated in VLFM and are trained in a scientific approach for providing leadership in manufacturing.

Currently, Prof. Shiba holds prestigious positions of Professor Emeritus, University of Tsukuba, Japan, Distinguished Honorary Professor, Indian Institute of Technology, Kanpur and Chief Advisor, CII VLFM Institute. He has also taught at MIT Sloan School for over 10 years, promoting a world-renowned program – Leaders for Manufacturing (LFM), which helped many American companies realise strategic breakthroughs.

In 2011, his Majesty, the Emperor of Japan honoured Prof. Shiba, with the Order of the Sacred Treasure, Gold Rays with Neck Ribbon for his immense contributions in fostering academic exchanges between Japan and India.

Prof. Shiba is a rare individual for having seen conferred upon the Deming Prize (individual) for his outstanding contribution to quality management and globalization of TQM.

I, for one, have benefitted greatly by immersing myself in the learning environment created by Prof. Shiba in his workshops. He has opened my eyes and often twisted my head so that I can look in the right direction! His recent book, '7 Dreams to reality: Transforming Indian Manufacturing', chronicles the arduous journey of VLFM program with Godrej having contributed two case histories. A great read.

Thank you Prof. Shiba for all that you've done for us.

Professor Shoji Shiba

Professor Shoji Shiba was interviewed by CHANGE to capture his insights and wisdom on a variety of topics related to engineers, their education and their capabilities. Edited excerpts of the interview are here to enable our readers to get new perspectives on the subject.

1. CHANGE - What according to you makes a competent engineer? What skills should he posses?

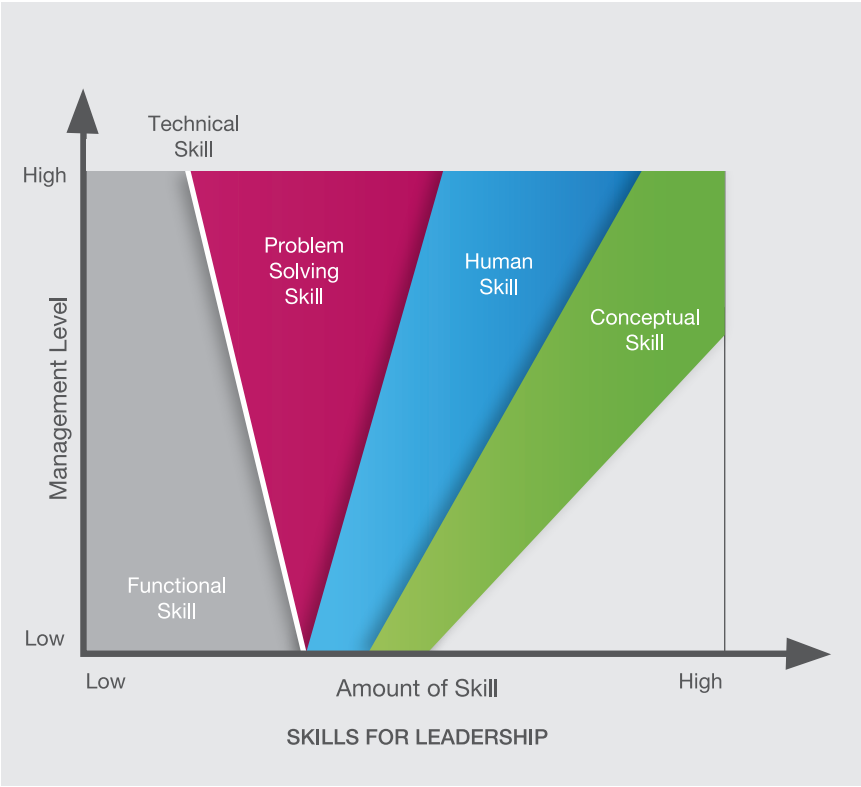
Prof. Shoji Shiba - Engineers should appreciate that for becoming competent in their profession, besides 'Engineering skills', they must have three additional competencies. The first competency is that of 'Problem Solving skills', the second competency is 'Conceptual skills' and the third competency is that of 'Human skills'. Capable engineers at senior levels should have high proficiency in all of these competencies.

When a young engineer joins an organisation, his portfolio of competency has mostly engineering skills. As he grows in his career, his competencies begin to expand with problem solving, conceptual and human skills getting added to his core engineering skills, as shown in the diagram. After a few years, the engineering skills stop growing and problem solving skills begin to grow. Moving along, conceptual skills and human skills begin to develop and grow. At the senior levels, the portfolio of skills widens with problem solving, conceptual and human skills getting expanded, with pure engineering skills diminishing, as shown in the diagram. This happens because the jobs at the senior level involve more of direction setting and strategizing and getting people to rally around the direction selected. People have to be managed and inspired to perform well which calls for a large measure of conceptual and human skills. Staying the course, many problems arise which need to be solved and more importantly, problems have to be identified proactively and solutions found. Hence, it should be appreciated that if an engineer fails to expand his entry level skills over a period of time, then he cannot contribute to the growth of the organisation. Over the years, the job must expand, which calls for continual learning and reshaping of the mindset.

To have an idea of the skill set of a capable engineer, it is essential to know the stage of career he is at and what is expected of him. Then and only then, it is possible to profile his skills accurately.

2. CHANGE - What changes ought to be made in our engineering education system to have higher caliber engineers?

Prof. - Engineering involves applying principles of science to real world problems. Hence, an engineer should have the knowledge of engineering,



SKILLS FOR LEADERSHIP

but more importantly he should know how to apply the theory to real world problems. In the business context, this would translate into theory constituting only 30% of the total learning and the balance 70% of the learnings coming from the practice. The theory can be taught in the classroom but the engineering practice cannot be learned in the classroom, it must be learnt in the real world.

The engineer therefore has to jump into the fishbowl, i.e. the real life situation, stay there, learn how things are, jump out of the fishbowl, i.e. return to the lab/classroom and begin developing solutions. I call this a 'fishbowl experience'. If the fishbowl experience, which is essentially practice work, has to account for 70% of the learning, then the engineering curriculum as it exists has to be changed radically on the lines of the curriculum of Visionary Leadership for Manufacturing (VLFM) program. This kind of a radical change calls for a complete change in the mindset of those in charge of engineering education and business leaders as well.

The second aspect of training of engineers concerns leadership skills. Without leadership, nothing works. A person who is merely an engineer cannot perform higher order tasks, especially in business. Even for a mature product like refrigerators, new technology has to be acquired which calls for entering into collaborations and to make collaborations successful, leadership skills in a good measure are absolutely essential; hence, the training in leadership skills becomes a vital area of learning for engineers.

The third area of training engineers is to make them well-rounded with wider perspectives and in a way having more holistic understanding of life. Not only should they be good at logic but they should be strong on intuition as well. Side by side of hard sciences, in their minds, softer sciences should also have the rightful place. This is essential to have empathetic understanding of consumers for designing products and services that have 'aesthetics' built into them for greater appeal. If we teach engineers only engineering skills, then they will not be capable of creating something new for your organisation because they do not understand the ever-changing human nature. Pure engineering education is good for having academics and researchers - the people who work on the theory. But in the context of business where we have to create something new and tangible quickly, the training for developing a 'holistic world view' is absolutely essential.

Engineering education is also imparted in the companies where engineers are recruited. Hence, what I have said above also applies to the way in which companies train their engineers. One way to accomplish this is to have more engineers participate in the revolutionary program of training called the VLFM – the Visionary Leadership for Manufacturing. To help participants develop a holistic perspective of the real world, night classrooms are held in which they are exposed to cultural events including dance performances. Here they learn how gestures are useful for effective communication. As leaders should learn to communicate well, the participants are encouraged to join these sessions. As they are performing, they are being watched by many people, i.e. many eyes, hence they become aware of the fact that they have to behave appropriately and responsibly. It is easy to connect this to the real life situations where the leaders, being the role models, are watched relentlessly by the others. Leaders have to learn to watch their behaviours. This kind of training is part of the 'practice' that I spoke about earlier.

3. CHANGE - In India, engineering firms face shortage of good engineers. Engineering students with high grades tend to opt for management education. Very few engineers go for postgraduate studies in engineering. What should we do to solve the problem of the shortage of good engineers?

Prof. - You can do many things, but one of the things you can do is to train more women to become engineers. Of course, this calls for having a comprehensive policy in place for encouraging women to opt for engineering careers. Having more women engineers in business is a new trend today. Over the long run, if the mother is an engineer, then it is likely that her children would opt for engineering and hence, the daughters. A quota for women in engineering education could be an idea worth exploring. With more women engineers in the employment, more women will get employed which is good for the society.

Companies also will have to do many things differently to attract women to the engineering profession. They will have to project women engineers as the face of the company. The work environment also will have to be redesigned, so that it is appealing to women employees. The workplace has to have better and more of ergonomics; it has to be stylish, shining and clean so that it appeals to the aesthetic sense of women. Such workplaces will be liked by young men engineers who are now beginning to dislike dull and drab workplaces typically found in engineering companies. Secondly, companies must develop an attractive fashionable uniform for women engineers. The uniform should be so well designed that the women should feel proud to wear it. And every young woman should aspire to wear it. Thirdly, the food in the company cafeteria will have to be redesigned so that it appeals to the women employees, as women in general are quite critical of the quality of the food and the way it is presented. Thus, you can see that by employing more women engineers, it is possible to create altogether a 'new story' in the organisation. Women engineers bring a sense of aesthetics, intuitive thinking, and teamwork to the job and are likely to come up with solutions for real life problems that are more empathetic and holistic. In my view, it's a good idea to have a larger number of women engineers in the companies.

4. CHANGE - In most Indian businesses, for pure engineers to grow upwards in the engineering function itself, a ladder for promotion is not available. As a result such engineers have to get promoted to managerial positions,

which results in a double loss for the business. What could be a way out?

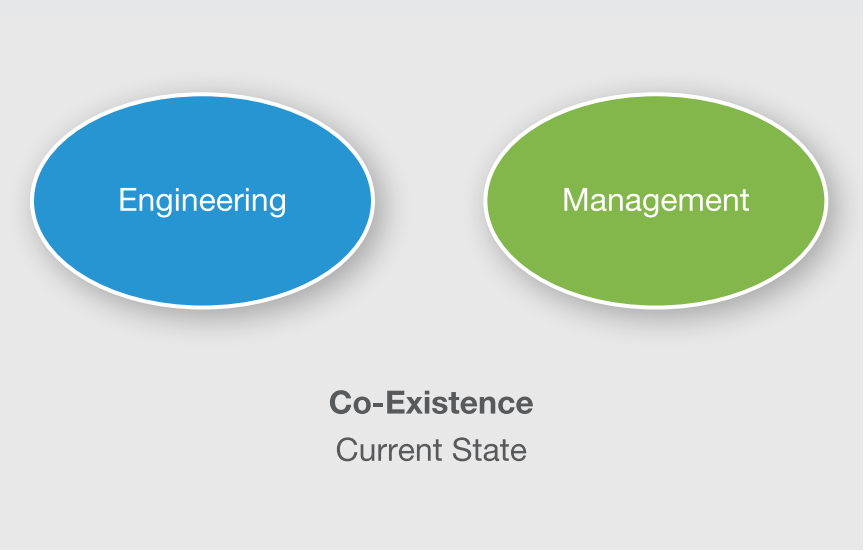
Prof. - In most of the businesses, it is difficult to create a tall hierarchical ladder for the engineers to climb and assume senior positions. Such promotional ladders can be created only in businesses which are heavily into engineering or have a large research and development function. For example, in case of companies like IBM, Hitachi, Mitsubishi and others, highly capable engineers can become 'fellows' of the company and continue to work in the engineering field. This scheme is not easy to implement in most of the companies. Further, you require a large number of highly capable engineers for this scheme to work. In view of the above, in most of the engineering businesses, engineers will have to acquire a wider range of skill sets as mentioned by me earlier.

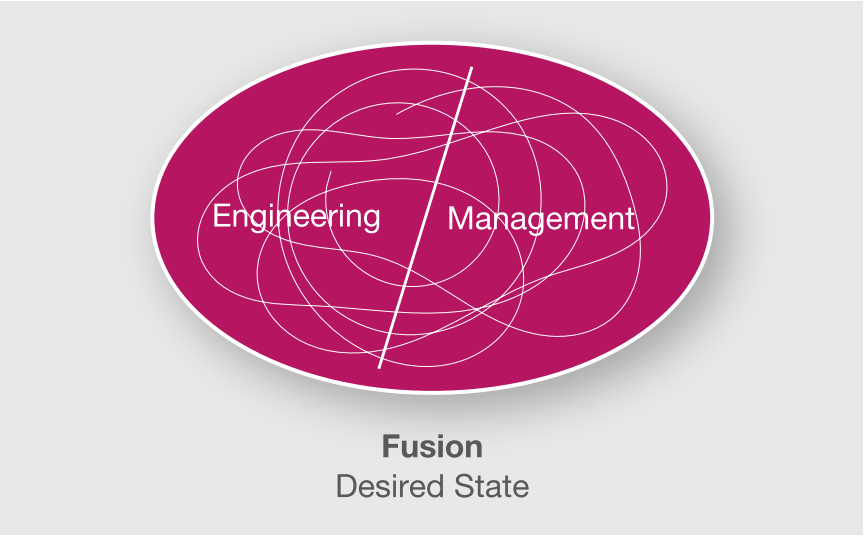
To improve engineering capability in the businesses, strong linkages should be formed with the academia. Businesses can bring academics with greater knowledge of the field and make them work with business oriented people for solving business problems. In this way, the required engineering expertise can be brought in from the outside. Also, the businesses have the responsibility to involve young faculty members from the academia and expose them to business realities. In this way, engineering faculty becomes more grounded in business realities and is able to teach with greater relevance to their students. The linkages between the academia and the businesses must be strengthened and formed in larger numbers so that many more beneficial exchanges can take place. For example, the famous Japanese guru of quality Prof. Ishikawa was teaching chemical engineering at a university but was recruited to introduce quality into Japanese companies. As he had good knowledge of the industry and the business, he was very successful in introducing quality into the businesses and today he is more respected for his contributions to the field of quality than chemical engineering.

Overall, it is a good idea to allow engineers to grow into management positions so that the businesses can be managed more holistically.

5. CHANGE - Do you think that engineering and management can co-exist on an equal footing? What can be done to make them function harmoniously?

Professor - Yes, engineering and management can co-exist, but it's not a good idea because if they co-exist only, then we have two different entities at hand, namely the engineering and the management. This kind of phenomenon is not good for adapting to the societal changes. To tackle the societal changes, we have to aim for a fusion of engineering and management functions, so they are well blended to become a new entity altogether.





The biggest driver of societal changes is the technological change, the so called high-tech. Consider, for example, the mobile phone and the associated technologies. To handle such a massive technological change, it is essential to have engineering background for the people in the management for sound running of the business. People with background of finance, arts and the like cannot easily transform 'engineering' into a successful 'business'. However, engineers can handle finance, HR and similar functions of the business. Also, for selecting the future direction of the business, knowledge of engineering is essential and so is the acumen for business. We must understand that for a strong future-oriented business, engineering alone is not sufficient, but it has to be blended with the management knowhow to create a new way of managing which is holistic and capable of coping with the technological changes of the future.

6. CHANGE - What should Godrej do to develop engineering capabilities?

Prof. - If you want pure engineering capabilities, then the things that you could do are pretty much obvious. Like I mentioned, linkages with academia could be helpful and so could be the refresher courses. However, if you want to improve engineering capabilities in the context of the business, then you have to encourage young engineers to jump into the fishbowl, and get fishbowl experience, again and again.

Engineers typically work in operations, but as we have this 'Big M' concept of manufacturing where the perspectives taken are beyond operations and are much wider. The perspectives embrace design, customers, sales, suppliers, and the like. Engineers have to visit the end users and learn firsthand from them how exactly the product is used and where the changes could be made to improve the product or a service, so that customer satisfaction is enhanced. As opposed to this sort of working, where considerable amount of innovative thinking is called for, operations are pretty much routinised as they are driven by 'standards'. To improve operations, the standards have to be improved, which require some amount of capability for improvement. But to engage in proactive problem solving, a host of new skills are essential to acquire, such as the skills of observation, interview, analysis, communication and the like. The engineers should have a good knowledge of semantics – the science of language, so that they can communicate effectively. Senior managers must teach these skills to younger engineers, so that new capabilities are developed in them. In the process, the bosses learn as well. This is what we do in our VLFM program. Sending more people to VLFM program is one way to develop good and capable engineers for your businesses.

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7. CHANGE - A piece of advice for young engineers.

Prof. - The existing knowledge gets obsolete very fast. The half life of engineering knowledge is maximum two to three years, though in some branches it is only 6-9 months. Therefore, to remain relevant, engineers have to unlearn continuously and relearn quickly. It is a skill by itself.

In the business context, engineers will have to be ready to go to the source and experience things firsthand. What I mean is that they have to acquire 'fishbowl' experiences frequently and quickly. After the fishbowl experience they have to take action which need not be full 100% - a kind of perfection. As learning happens only after action has been taken, I urge young engineers to attempt 60% improvement first and quickly. In the real world, perfection is not possible in the first attempt; hence, good enough a solution has to be attempted. But, the first solution has to be improved continuously to reach close to 100%.

Also, I advice young engineers to cultivate the mindset of 'I enjoy the job' instead of 'I know the job'. Assuming that you have two persons each with the mindset as mentioned here, who do you think will go far over the years? The answer is the person who has the mindset of 'I enjoy the job'. The job in itself may not be enjoyable but it is the mindset that makes the job so. If you change the mindset, you can make any job enjoyable, including the most mundane one. Hence, it is all about the mindset.

Over a period of time, if you keep challenging yourself by jumping in and out of different fishbowls and do something concrete about what you have learnt and attempt the 60% improvement that I have mentioned above, you will never have a dull moment and you will enjoy your job always.