

Breakthrough in Higher Education for Transforming Indian Manufacturing: VLFM programme

Shoji SHIBA & Venkatesh BALASUBRAMANIAN

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1. Introduction

The Indian manufacturing industry has been growing at a very high rate due to domestic as well as foreign investments. It is also globalizing which is reflected in international acquisitions. This scenario has forced the Indian manufacturing industry to look for engineering talent to transform itself from a “production” to a “Big M (manufacturing)” organization capable of innovation, product and technology development, efficient supply chain.

1.1 Challenges in Indian Manufacturing

The manufacturing sector in India is facing a crisis situation in terms of the limited supply of manpower at an appropriate skill level that is willing to work in this sector. This can be attributed to high growth in the service sector led by information technology and information technology enabled services (IT/ITES) for the last twenty years that has absorbed engineering talent due to better salaries and growth opportunities. The available engineering talent pool is shrinking both in quality and quantity. Other factors responsible for shrinking manufacturing manpower are.

- 1) *Manufacturing growth constraints:* There is a decline in mid-level leadership in manufacturing due to manpower migration to information and communication technology (ICT) jobs. This migration is primarily due to the high pay in this sector.
- 2) *Competitive constrain:* A large number of manufacturing companies, both domestic and international that has started operations in India. This is primarily propelled by the increasing demand for new products and mass customization, globally. Increase in number of manufacturing companies results in a deficit of trained manpower.
- 3) *Quality constraints:* Responding to the growing demand for engineers, a large number of engineering colleges were started. This sudden and rapid growth raises questions of quality of these colleges.
- 4) *Career growth:* Career growth in manufacturing industry is quite slow as compared to the service industry.

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Growth of the manufacturing sector in India has been recognized as a key thrust area by the Government of India. While India's manufacturing sector contributes to more than 75% of India's total exports, it comprises only about 17% of India's GDP as compared to the higher contribution made by the manufacturing sector of other East Asian economies e.g., China (35%), Thailand (34%), Malaysia (31%) and Indonesia (25%). There are many reasons that contribute to this. The current leadership in government, industry and academia after detailed deliberations attributed it to the mindset of people engaged in manufacturing. There is a need to change perspective from production (small 'm') to an holistic approach to manufacturing that addresses all the issues concerned (big 'M'). Some of the issues that get addressed in big 'M' are research and development (R&D), design, supply chain, customer relations, technology and societal changes, environmental impact, etc. Change can be brought about only by the transformation of the leaders to visionary leaders.

The National Manufacturing Competitiveness Council (NMCC) was constituted by the Government of India in September, 2004 to energize and sustain the growth of the Indian manufacturing industry. One of the key objectives of NMCC, among others, is to serve as a policy forum for enhancing the competitiveness of the Indian manufacturing sector and thereby bringing about 12-14% growth in the next decade. This is expected to increase the share of manufacturing in national income to 25-35%. To achieve these growth targets NMCC has drawn up a longterm manufacturing strategy which includes strengthening education and training at various levels. One of the major initiatives of NMCC was to set up the Visionary Leadership for Manufacturing (VLFM) with participation from premier institutes of technology and management in India, address three key challenges facing Indian industry namely development of quality higher education enabling manufacturing industry to attract and retain the best talent, and developing a critical mass of intellectual property through R&D initiatives.

1.2 Formation of the VLFM Programme

The Visionary Leaders for Manufacturing (VLFM) programme has been developed by NMCC in collaboration with Ministry for human resource development (MHRD) represented by its flagship Institutes of technology (IIT) and Management (IIM) and Confederation of Indian Industry (CII), as a training programme, under the Indo-Japan Cooperation Agreement 2006; signed by the Honourable Dr. Manmohan Singh, Prime Minister of India and His Excellency Mr. Shinzo Abe, Prime Minister of Japan, in December, 2006 (Government of India, 2007-08).

This programme aims at creating visionary leaders at the level of senior and middle management who can bring a Big 'M' perspective to the manufacturing industries in India. This was planned to be brought about by establishing an advanced, innovative education and training programme with the assistance of Japan International Cooperation Agency (JICA).

VLFM programme was designed and drafted through consultations made during multiple workshops conducted at three institutes, i.e., Indian Institute of Management Calcutta (IIMC), Indian Institute of Technology Kanpur (IITK) and Indian Institute of Technology Madras (IITM). Faculty from these three

institutes and representatives from Indian industry worked on this breakthrough programme under the support of Shoji Shiba, Chief Advisor, VLFM programme, JICA. In addition, a detailed survey was conducted to understand the needs of Indian manufacturing industries. From the workshops and survey it was evident that a single programme would not meet the needs of manufacturing industries in India in terms of size and nature of the manufacturing organizations, number of leaders required to be created, and availability of workforce considering the current industry requirements.

On the basis of the Detailed Project Report (DPR) prepared by NMCC, IIT, IIM, CII and JICA, four opportunities for training were identified. A decision was made to have four variants of the VLFM programme. The variants and the respective nature of the programme are described below and summarized in Table 1.

Table 1. Duration of coverage for the topics with the institute in which they are covered

Opportunity	Targeted participants	Duration	Nature of Programme
PGPEX-VLM	Junior to Middle Level (5-10 yrs)	1 year	Residential
Visionary Corporate Leaders for Manufacturing (VCLM)	Senior Manager Level	5 modules of 5 days each with intervening periods spent in company	Non Residential
Visionary Heads of Manufacturing (VHM)	CEOs and COOs	3 days followed by 2 interventions of one day each in a year	
Visionary Small and Medium Enterprises (VSME)	SMEs	12 modules of 2 days each every month for a year with intervening periods spent in company	

The first program titled Post Graduate Programme for Executives — Visionary Leaders for Manufacturing (PGPEX-VLM) was formally announced on May 7, 2007. Jointly conducted by IIMC, IITM and IITK, the first batch was formally inaugurated on August 27, 2007. The second, VCLM, is coordinated by CII, an apex body of Indian manufacturing organizations, was started on September 30, 2007. The third VHM is scheduled to start from November 23, 2010, VSME, formally started in Pune on December 1, 2009. As a policy decision, it was also decided to admit only those candidates who had dedication to work in manufacturing and who were committed to the development of India.

All these opportunities have brought about multiple breakthroughs both for the participants and Indian manufacturing companies. In this paper, we will focus on the breakthroughs brought about by PGPEX-VLM as it is a unique opportunity offered by leading Institutes of Technology and Management in India. This programme is also the first of its kind in the country in which a joint degree is offered by leading Indian academic institutions. Unlike the traditional higher educational degrees such as MBA, MS or MTech, this programme is focused on integrating both technology and management necessary for “Big M.”

2. Breakthrough in PGPEX-VLM

PGPEX-VLM has three unique features for higher education systems in India. The first is the collaboration between Government, academia and industry. Even among the academic Institutes, for the first time three leading Institutes, IIMC, IITK and IITM have come together to teach a joint programme in management and technology. Second, the teaching style adopted for training the participants included new innovative method to change the mindset and skill oriented course delivery focused on leadership development. Third, there was a breakthrough brought about in the learning environment. Participants had the unique opportunity to be resident in three different Institutes that have traditionally acknowledged the importance of holistic education. The learning environment also exposed the participants to a combination of theory and practice. They also had the unique opportunity to observe and learn from different cultures in India and Japan.

2.1 Breakthrough in Collaboration

Collaboration has multiple aspects. Three important aspects of this collaboration are between stakeholders, the body of knowledge and the impetus to utilize the graduates of PGPEX-VLM.

2.1.1 Collaboration by the Stakeholders

There are three stakeholders in this process, Government, Academia and Industry. Each stake holder plays different role as indicated in Figure 1.

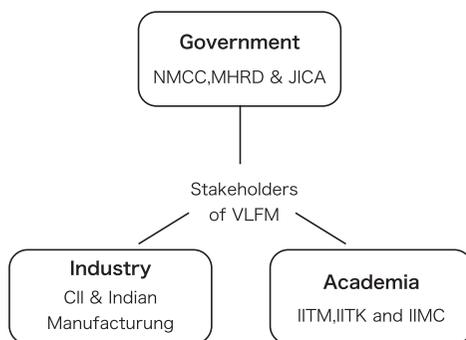


Figure 1. Stakeholders of VLFM programme

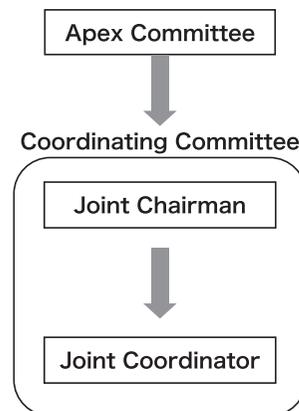


Figure 2. Working organization for PGPEX-VLM setup

Role of Government of India (GoI) is to drive its manufacturing initiatives through NMCC, under the leadership of Dr. V. Krishnamurthy, Chairman, NMCC. Their counterpart from the Japanese side is JICA, which plays a key role in setting up a framework for implementing the project. Shoji Shiba is the chief advisor of this project in JICA and member of the NMCC Apex Committee on VLFM.

Academia involvement is brought about by three premier Institutes in technology and management. They provide the expertise and infrastructure needed for the programme.

Industry participation is brought about by Confederation of Indian Industry (CII), which represents a large number of Indian manufacturing industries. These industries participate in several ways, a few of which are enumerated here,

- Sharing their practices with visiting VLFM students
- Admitting students internships
- Sponsoring employees for VLFM programme
- Recruiting students on completion of the programme.

In order to integrate various roles of stakeholders PGPEX-VLM setup a working organization, called the Co-ordination Committee (Figure 2). All the important strategic decisions regarding the programme and opportunities; including objectives and mission, broad guidelines with regard to curriculum, course administration, certificate to be awarded and issues related to collaboration between participating institution, collaboration with other institutions (including institutions abroad), are taken with concurrence of the Apex Committee.

The overall administration of PGPEX-VLM is under the leadership of the participating institutes by rotation. PGPEX-VLM Coordination Committee comprising the opportunity coordinators from IIM Calcutta, IIT Kanpur and IIT Madras, nominated by respective Directors for the normal operations of the programme. The Coordination Committee administers admission, programme execution, evaluation, faculty selection, coordination with industry, etc.

This organisation setting looks like a common practice, but the breakthrough point exists in how this organisation works effectively.

2.1.2 Collaboration to Integrate Technology and Management

This opportunity is designed to generate knowledge at the intersection of engineering and management. Hence the modules were planned to be a blend of manufacturing technology and management. Functional knowledge management is taught at IIMC and manufacturing systems and technology are taught at both the IITs. Leadership and decision making in particular are taught at both IIMC and IITM.

The breakthrough of the curriculum lies in the coverage of modules in different Institutes. The participants during the stipulated period spend 5 months in IIMC, 2 months in IITK and 2 months in IITM and Industries.

2.1.3 Collaboration to Create VLFM Community

Graduates of PGPEX-VLM, owing to their unique training have developed skill set that may not be optimally utilized by traditional manufacturing industry. Hence it is imperative to create an ambience these

graduates could contribute substantially towards the growth of organization and the nation at large. This is provided by the alumni of the other programmes for senior managers and executives who share the common language, tools and culture are referred as “VLFM culture.” In order to achieve these results in sustainable way, close interactions between faculty and participants of VLFM broadly referred to as the “VLFM community” is encouraged. Initiatives like the VLFM annual convention are organized by the stakeholders where success stories from the alumni are demonstrated and discussed.

2.2 Breakthrough in Teaching Style

Transfer of knowledge in contemporary style although time tested may not be adequate to bring about the visionary leaders that this programme aims to produce. Hence it was decided to have three major breakthroughs in teaching style. These start with fundamental change in the mindset of both the faculty and the participants towards learning. The second breakthrough was in the way courses are delivered to the students. The focus on leadership development for executives is probably the most critical part in management education.

2.2.1 Breakthrough in Mindset Change

Faculty forms the essential component in the knowledge transfer and grooming of the visionary leaders. Hence it was initially decided to seek a mindset change in the faculty towards the concept of developing visionary leaders. A motto, “to teach is a word of arrogance,” which represents this mindset change was framed and followed by the faculty in the VLFM community. This motto means that the role of faculty is not to teach or profess or deliver courses but to plan a process that creates a system for transformation of the participants. This is demonstrated by the creation of innovative learning environment for the participants, which is described in detail in later sections of this paper.

Participants for the VLFM programme have five to ten years of experience in manufacturing. They come with a mindset of knowing industry aspects and practices. They have to break this mindset in order to learn and imbibe the aspects taught in VLFM programme. As a systemic problem it was observed that three major impediments exist towards transforming the mindset of the participants. A visual representation of this motto is clearly displayed in the classrooms as a constant reminder to the participants (Figure 3).



Figure 3. Impediments towards transforming the mindset

These impediments were identified by Shoji Shiba as a tendency to talk more rather than focus on delivery; this is referred to as “Talk Talk Talk” or “TTT.” The next impediment is the attitude to put self

interests ahead of the larger group or societal interest which is referred to as “Me First Attitude” or “MFA.” The third impediment is the tendency to pass responsibilities, which is coined as “Passing The Buck” or “PTB”.

One of the key attributes of a visionary leader is to perceive change and scientifically justify the rationale behind such perception. This is a mindset change which is brought about not by discussion but by using a tool which utilizes both the logical and creative skills and brain of the participants. This tool is referred to as the five step discovery process. Participants learn to use this tool in the beginning of the programme and continue to practice it as a part of their curriculum.

2.2.2 Breakthrough Style of Course Delivery

This opportunity as mentioned earlier is jointly offered by IIMC, IITK and IITM. The expertise of the faculty in each of the three Institutes was identified and course modules planned accordingly. This offers the best of the available expertise to the participants. In addition, faculty jointly teaches courses, which attempts to decrease the teaching in which one expert delivers in his unique style.

Another style of teaching is “out of class room teaching”. Table 2 shows the time duration in the three major learning places, academic institutions in IIMC-IITK-IITM (total of 9 months), exposure to industry is 2 months, in addition to the 0.5 months spent in Japan visit.

This teaching structure shows the basic philosophy of PGPEX-VLM which revolves around theory principle and real world practices. In other words, the teaching structure helps to transform the knowledge gathered into understanding and finally into the skill to be captured for future challenging opportunities. Table 2 shows the nature of the term and duration spent in each term with the institute where it is offered.

Table 2. Duration of innovative environments experienced

Learning Environment	Institute	Duration
Academic	IIMC	5 Months
	IITK	2 Months
	IITM	2 Months
Industry	Industry Visit	0.33 Months
	Internship	2 Months
International	Japan	0.33 Months
Final placement	IIMC	0.33 Months

2.3 Breakthrough in Learning Environment

“To teach is a word of arrogance. We can only create innovative learning environment” is VLFM motto. The highlight of the innovative environment is migration to different environments. PGPEX-VLM students migrate starting from IIMC to IITK and then to IITM after which they proceed to internship in industry. They come back to IIMC to attend final placement and at the end, proceed to Japan for an industrial visit. PGPEX-VLM is a residential programme, migration create a sense of moving a big family. There are three benefits of the migration.

1. Participants recognize the strengths (as well as challenges) of each learning environment.
2. Participants get a feel of the local culture and the local language. IIM Calcutta being located in Kolkata, West Bengal exposes the participants to East Indian culture, IIT Kanpur being situated in the state of UP, is a centre of north Indian culture and IIT Madras located in Chennai in the state of Tamil Nadu, provides exposure to South Indian Culture. At the end of programme students visit Japan, where English is not spoken. These environmental changes have a strong impact as most of the Indian students have intuitive faith that English will be language for communication all over the world. It is important to realise the limitations of this from an Indian context where multiple regions exist with local languages; the Japan visit exposes them to the situation in a wider context.
3. Students need to adapt to different environments physically and mentally in addition to the novel concepts of taught. A student says “I can live with less than 20 kilograms of luggage” Migration makes students to learn to throw away rather than keep, in other words to understand to focus on what is the most important.

In summary, the essential lesson from continuous migration is a capability to see the world in a comparative way. “There is no single right solution, opportunities are infinite”. Many students learn this principle through their migration experience. Students start to think about what is their own unchanging identity under such diverse environments. They realize that adaptation is not enough, because it is reactive. Then they think about the need for an unchanging identity. This identity is the starting point to develop visionary leadership.

3. Implementation and Results

After starting the PGPEX-VLM programme in 2007, 92 students have graduated in three batches. The fourth batch is currently in the middle of their course. Starting fifth batch (2011) onwards, there is a plan to increase the class size from 30-35 to 40-45.

Students from all the three batches were placed in industry. The evidence of reception of this programme by Indian manufacturing society can be observed from the annual salary offered to the PGPEX-VLFM graduates, summary of which is presented in Table 3.

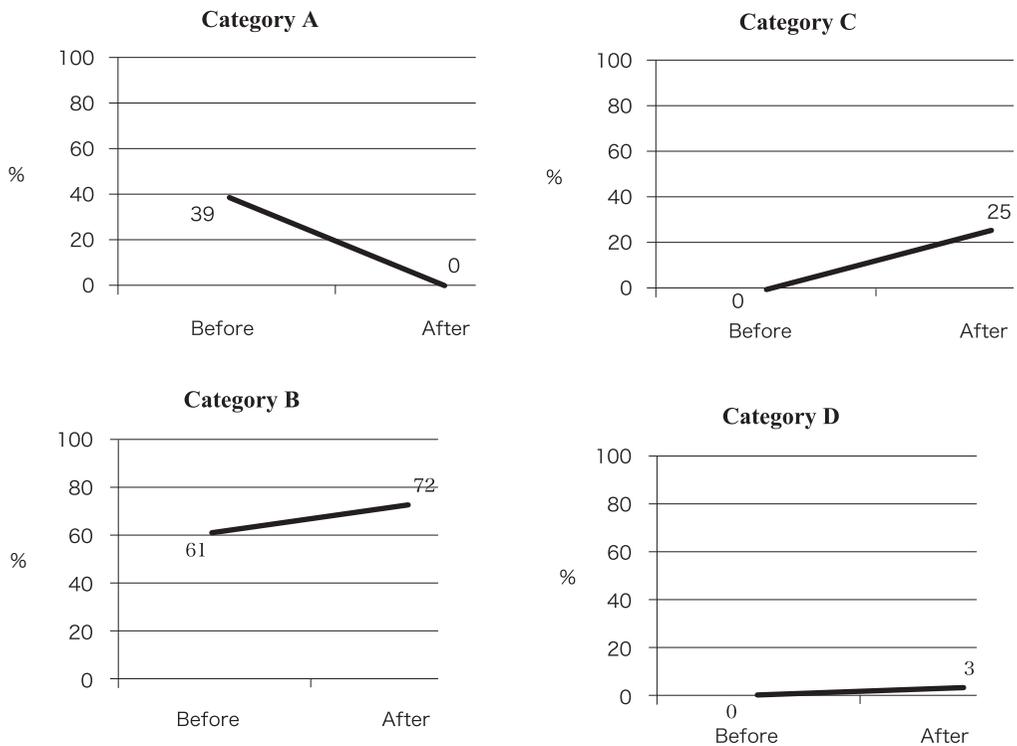
Table 3. Batch-wise details of participants' enrolment and placements

Batch	Year	No. of participants	No. of Sponsored participants	No. of participants Placed	Median Salary in Million Indian Rupee (INR)
1	2007-08	30	2	28	1.36
2	2008-09	32	4	28	1.10
3	2009-10	30	4	26	1.15
4	2010-11	28	5	NA	NA
5	2011-12	40 (Tentative)	NA	NA	NA

First batch participants had a higher salary compared to participants in succeeding two batches. This may be attributed to the presence of more experienced participants in their batch. Annual salary of INR 1.1 Million is extraordinarily high in Indian job market. According to the information provided by naukri.com (one of most popular job search and information services provider in India), INR 1.1 Million is nearly double the salary of equivalent cohort experience as shown in Table 4. It also shows that only the top 10% of people employed in manufacturing sector earn a salary of INR 1.1 Million (for the same 7 years of experience, 7 years being equivalent VLFM participants working experience). It is interesting to note that even in IT and Finance sector, only the top 20% of professionals in Finance and top 15% in IT with same experience earn a salary of INR 1.1 Million.

Table 4. Data for Students with seven years of experience in different functional areas

	Manufacturing	Marketing	Finance	IT
Median salary in Million INR	0.4	0.5	0.55	0.75
% with salary more than 1.1 in Million INR (Indian Rupee)	10%	13%	20%	15%



Notes: Category A is junior level with designations like Engineer and Senior Engineer. Category B is lower-middle management with designations like deputy, assistant or manager. Category C is upper-middle management with designations like chief, senior or executive manager. Category D is people who started their own business.

Figure 4. Change of designations before and after PGPEX-VLM in Batch 2 (Graduates of 2008-09)

Therefore one can conclude that graduates from PGPEX-VLM are well received in the job market. Of course this high salary is the result of their higher responsibilities in their respective organizations. Figure 4 shows the change in job designations before and after graduation for the PGPEX-VLM.

Figure 4 clearly shows that the graduates were upgraded to at least the Middle level and one quarter of the participants were placed in upper middle level positions. Upper Middle level managers are usually responsible for managing multiple units of an organization, which means that PGPEX-VLM helps them to enter senior manager level.

Another indirect measure of popularity or recognition is the frequency of independent reporting in the mass media. Media usually highlights the events in society after prioritizing its editorial perception of what is required. Hence the frequency of appearance could be used as an empirical criterion to understand the expectation of Indian society to PGPEX-VLM. One of the national news network IBN and its affiliate CNN had reported the inauguration of the PGPEX-VLM in the year 2007. Over 33 independent reports of the PGPEX-VLM have been made since that appearance in the mass media. This is substantially higher than any other new programme in higher education in India.

4. Key Success Factors for Implementation

PGPEX-VLM has completed three years. In this short period, there are many signs of success in the form of large number of applications for a limited number of vacancies, successful placement, etc. This duration is however not long enough to assess the direct impact of alumni from this programme on Indian manufacturing. However the process for implementation of the programme has been unique and is discussed in detail in this section. The process for implementation starts with the societal environment that beckon the transformation, the real change leaders who work to make a success of PGPEX-VLM and the external influence on these real change leaders to grasp this opportunity.

4.1 Initiate Half a Step Ahead of Tipping Point

Today (2010), India is the fifth largest economy with a GDP (purchasing power parity) of about US\$ 3.57 trillion in 2009. This was possible after a policy shift towards free market starting 1991 under the then Prime Minister Mr. Narasimha Rao from the socialist inspired approach. This shift to liberalize the economy aided GDP growth and inflow of foreign investment.

Transformation of society took place during this growth phase. This is demonstrated by large infrastructure projects like the various metro rails in large cities, interconnection of India by the golden quadrilateral roadways, the lunar mission which provided conclusive evidence for water on the surface of moon, the commonwealth games being organized in India in 2010, etc. Although these achievements indicate great progress and made every Indian proud, the planning for this transformation had been initiated just a little bit before the tipping point (Gladwell, 2000).

Macro-economic transformation in the public policy of India was initiated in early 1990s but the true tipping point (in terms of societal change to emphasize value creation through manufacturing) crystallized around 2004. The initiative to launch the VLFM programme also started in 2004. This near synchronization of the breakthrough idea and the societal tipping point provided conditions for the acceptance and pursuit of this breakthrough process in higher education.

4.2 Visualize Feasible Breakthrough Ideas

In most societal and public policy issues, the symptoms for change cannot be tied to a particular start date. Similarly, Indian reforms yielded rapid change across the society. One of the persons who channelled this rapid change to societal differentiation was the former Indian President Dr. A. P. J. Abdul Kalam. He envisioned a developed India by the year 2020 and described the various changes that were required for this transformation in his book “*India 2020: A Vision for the New Millennium*” (Kalam & Rajan, 2002). This vision is representative of the common thinking among many of the leaders in India.

There are many breakthrough ideas that are developed in the discourse of public policy and nation building. However most of such ideas seldom get to be acted upon and even fewer end up being successful. VLFM was planned to build a leadership pool who understood the value in creating the Big “M” of manufacturing. VLFM is a breakthrough idea that was nurtured by national leadership at the tipping point. This visualization of a breakthrough idea by national leadership is an essential attribute for the success of any programme.

4.3 Focus on Critical Points of Societal Needs and Individual Desire

A comparative study of the two big Asian countries would indicate that India had a marginally higher GDP of US\$ 276 Billion and China US\$ 270 Billion in the year 1987 (World Bank Development Indicators). China with its reforms and its own internal mechanizations had started to grow in double digits while India was on slow growth trajectory.

This differential growth rate can be explained by the time lag of change of mindset in liberalization of the economies in these countries and the avenues of focus for development. Democratic India had to have substantial internal dialogues before the liberalization could be implemented. By virtue of its political structure, implementing policy changes in China required much less internal dialogue due to the limited number of people engaged in such deliberations and the fundamental difference of opinion in terms of ideals.

In terms of the focus in growth, a large proportion of growth in the Chinese economy had been driven by manufacturing sector together with development of its associated infrastructure, while the initial growth in Indian economy started with ICT. Core area expertise required for performing ICT jobs is limited and could be trained without much difficulty. The growing ICT opportunities and the flexibility in terms of skill requirement allowed barrier free migration from all domains.

Salary	High	IT/Finance	Big “M”
	Low	Cottage Industry	Public Sector/ Agriculture
		Low	High
		Manpower Employed	

Figure 5. Manpower-Salary matrix for some of the various employment sectors in India

The manpower-salary matrix shown in Figure 5 shows the position of various sectors in societal and personal context. This visualization allows us to understand the implicit non-inclusive and local national growth achieved by the boom in the ICT. The Big “M” attempts to provide an opportunity to have a win-win situation where more people get employed and also tend to have better salary.

As a nation with strong democratic tradition, the political leadership of India aspire to have inclusive growth. Inclusive growth aims to have a high proportion of the population employed thereby reducing the social divide. The growth in the India economy due to ICT was not inclusive and requires strong intervention from the Government. The political leadership in India envisioned growth through job creation in the higher employment domains of manufacturing and agriculture. However if personal aspirations for individual growth are not addressed, the migration of labour to the high paying avenues cannot be arrested. Hence it is imperative in the programme design for the transformation process to try to address these latent desires of individuals.

4.4 Coming Together of Real Change Leaders

Katzenbach has described the importance of real change leaders (RCL) as one of the essential component to bring about any transformation and particularly breakthrough ideas (Katzenbach, 1995). This also found to be true by Shiba during the implementation of breakthrough management in his diverse experience. In the VLFM programme too, the importance of RCL is found to be true. The concept of RCL in this context is different from the description detailed by Katzenbach. Katzenbach had perceived RCL as an engine to transform a single organization. However in the VLFM transformation process multiple stakeholders (described in section 2.1) collaborated to achieve a common goal. The executive body of PGPEX-VLM is composed of three independent academic bodies, i.e., IIMC, IITK and IITM. Each Institute has its own independent Directors, academic senates and faculty councils who oversee the academic functioning of these Institutes. It is unique that these organizations collaborated to create a feasible breakthrough project within a year.

This was possible primarily due to the people involved, who we will refer to as the RCL. To understand why these RCL would join together requires understanding of the structure and nature of association. In this

case, the RCL could be easily classified into two layers. One is the executive level, which takes the final decision with respect to the respective Institutes, i.e., the Directors of the participating Institutes. The PGPEX-VLM is aligned to the objectives of the Directors. As a way of describing, Prof S. Chaudhari (IIMC) had expressed, on many occasions, his management and technology vision by enhancing domain knowledge in manufacturing and developing strong management and leadership skills to transform the participants into valuable human resource. Prof S. G. Dhande (IITK) has also mentioned about striking a balance between professing and practicing. Prof M. S. Ananth (IITM) emphasizes the requirement to balance the left and right brain activity and not compartmentalizing academic initiatives. These fit the basic concept and direction of the PGPEX-VLM. All the three Directors have a deep understanding of the industry and participate actively in different roles. These three directors were brought together by Dr. V. Krishnamurthy for the VLFM programme, a person who was behind the formation and transformation of many government run heavy industries in India, Dr. Krishnamurthy was respected by all the stake holders and effectively was the force that bound all the stakeholders making breakthrough possible.

The second layer of RCL is the respective co-chairpersons of the PGPEX-VLM. These chairpersons also run the programme on a daily basis along with their faculty coordinators. Prof Pal (IIMC), Prof Mittal (IITK), and Prof Narendran (IITM) work on the operations research and are widely respected in both the academic and industrial communities.

Acknowledgement

A national breakthrough idea involving multiple Institutions is no normal effort. Its success has been possible because of the constant encouragement and support of many visionary leaders.

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製造業変革を目指すインド高等教育機関の ブレークスルー

司馬正次*

ベンカテッシュ・バラスブラマニアン**

インドの経済成長は著しい。しかし、そこには大きな弱点がある。それは製造業の相対的な弱さである。GDPに占める製造業の比率は17%に過ぎず、中国の35%、タイの34%と比べ物にならない。さらに、サービス産業と製造業との賃金格差は大きく、製造業を支える基幹的な人材は払底している。

このような国家的な課題を解決するため、日印の共同国家プロジェクトが、インド製造業経営幹部育成支援計画 (Visionary Leaders for Manufacturing (VLFM) Programme) の名のもとに2007年から始まった。その中核的プロジェクトの一つが中級経営幹部コース (PGPEX-VLM) である。

これは、人的資源開発省のもとにあるインドでもっとも権威あるとされる三つの高等教育機関、インド工科大学 (IIT-Kanpur, および IIT-Madras) インド経営大学院大学 (IIM-Calcutta) が、首相直属の国家製造業競争力委員会、インド工業連盟 (CII) などと、極めて強い連携をとり、産官学のネットワークの利点を生かし、インド製造業の経営幹部育成を図るものである。そして日本の JICA が2007年より、5年7カ月の期間支援を決定している。

そして、このプログラムの発足に際して、今までのインドの高等教育機関ではまったく見られなかった多くのブレークスルーが起こった。本稿はそのブレークスルーの側面に焦点をあて、その内容および、なぜそのようなブレークスルーが可能になったかの一端を示そうとするものである。

それは、国家の成長に高等教育機関がどのように関与するかの一つのモデルを与える可能性を持つからである。

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