Making Managers in India, 1940-1970:

International Collaborations and the Rise of the Engineer-Manager

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Abstract

A distinctive aspect of India’s managerial elite is that it is dominated by engineers. This paper unravels the history of how this major phenomenon arose, by tracking the evolution of management training and education in mid-twentieth century India. Using archival data from several institutions, it shows how visions of management evolved as interplay of dynamics between the public and private sectors of India, international collaborations and the retreat of the traditional managing agency system. It emphasises the significance of the network developed between the Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIM’s) and points to important contextual factors including the industrial recession of 1968-70, admission test criteria, and the lure of job-placements, that led to the rise of the engineer-manager. Some of these factors continue to be important in the early twenty first century, having significant implications on the diversity of educational backgrounds and diversity by gender among India’s managerial elite.
Introduction

In 2016, one hundred and forty four Chief Executive Officers (CEOs) of the top five hundred companies listed on the Bombay Stock Exchange in India held MBA-equivalent postgraduate degrees in management.¹ The Indian Institute of Management Ahmedabad (IIMA), ranked among the Top 30 business schools in the world by the Financial Times, accounted for twenty CEOs in this list, followed by other business schools in India and outside India. Virtually all the management degree-holding CEOs were engineers and standalone engineering degree holders comprised another eighty one CEOs. That is, nearly half of the CEOs of the Top 500 firms in India were engineers. Also in 2016, among the incoming cohort of management students at IIMA, a whooping ninety per cent had an undergraduate degree in engineering, and a third of those students studied at the prestigious Indian Institute of Technology (IITs). To put these figures in some perspective, less than a third of the incoming cohort at the Harvard Business School in 2016 had prior degrees in Science, Technology, Engineering and Mathematics (STEM) fields. In the top hundred business schools outside India, ranked by the Financial Times, the share of science and engineering students in recent batches, were at similar magnitudes as HBS.

Why then is the managerial elite of India dominated by engineers? The literature on the evolution of management studies or the development of managerial capitalism in India has so far not addressed this major question. One strand of literature has focussed on institution-building in the field of management education (Hill et. al. 1973, Tandon 1980, IIMA 1994, Misra and Chand 1999, Anubhai 2011, Mohan 2011, ARCH@Srishti 2012). Tripathi (2014) points out how management education and ‘managers’ became acceptable in the largely family-controlled business landscape of late twentieth century India, with the advent of the IIMs. Masrani et. al (2018) argue that management development programmes also developed

¹ Ragini Bhuyan, ‘How Many Indian CEOs have an MBA?’, Mint, Feb 16, 2016.
outside the educational sector through internal training programs, as witnessed at Tata Sons between 1940 and 1960. But the scholarship till date has not paid attention to the distinctive aspects of India’s managerial elite and the background of management students.

This paper shows how a major shift occurred in the three decades following the onset of World War II, through international collaborations in management training and education in India such that by the end of the period, the engineer-manager reigned supreme in the managerial job market. The period 1940-1970 also coincides with the period identified as the second era of marketing in twentieth century India that witnessed the rise of advertising associations and academic departments in marketing (Tumbe and Rall 2019). The paper uses archival data from three key institutions – the Indian Institute of Management Ahmedabad (IIMA), Ford Foundation and the Harvard Business School to establish linkages.

The rest of the paper is arranged as follows: The next section traces the various forms of international collaborations in engineering and management training and education in mid-twentieth century India. The subsequent section studies how the engineering phenomenon emerged at IIMA in the 1960s and the final section concludes with reflections on subsequent developments.

**International collaborations in Engineering and Management Training & Education in India, 1940-1970**

The British colonial state invested heavily in the Indian railways, but did not activate large-scale industrialisation to the extent it had done so in Britain. The Tata’s steel project in the first decade of the twentieth century was a major milestone in Indian manufacturing and it was significant that the firm imported a large number of engineers and technicians from the
US for that project, underlying the dearth of local talent. The early twentieth century marked engineering as ‘the birth of an Indian profession’ since engineers were valued in the Public Works Department, Railways, and large industrial setups (Ramnath 2017). But the number of engineers and engineering colleges in India was still small when British rule ended in 1947.

Nehru’s push for heavy industry in Independent India and widespread calls for speedy industrialisation laid a great emphasis on developing the stock and calibre of engineers. This was to be achieved by building great institutions of higher education, through technical collaboration with the relatively more developed countries. The All India Council for Technical Education (AICTE) was formed in 1945 and a 1946 official report of a 22-member committee chaired by N. R. Sarkar proposed the establishment of four technical institutes in different parts of the countries, modelled on the lines of the Massachusetts Institute of Technology (MIT). MIT had established a strong connection with India through technical education in the early twentieth century (Bassett 2016) and came to play a significant role in assisting higher educational projects in India in the 1950s.

The first Indian Institute of Technology (IIT) was set up in 1951 in Kharagpur in eastern India. In 1958, a second IIT was founded in Bombay in western India through a tie-up with the UNESCO and the Soviet Union. In 1959, the third IIT was founded in Madras in south India with technical assistance from West Germany. In the same year, the fourth IIT was set up in Kanpur in north India, with assistance from nine American Universities, dubbed as the Kanpur Indo-American Programme, and the first to offer computer sciences. Ford Foundation was involved in facilitating this tie-up. In 1963, another IIT was founded in Delhi, with some assistance from UK.

These five IITs soon became the leading institutions to offer engineering education in India and their students were coveted by industry and research departments around the world,
leading to calls of ‘brain drain’ in the 1960s. In addition, several other private engineering colleges also sprang up in India and by the early 1960s, nearly 20,000 engineering graduates were being churned out annually in India. Like the civil services, engineering and especially entry into the IITs was fast becoming an aspirational dream for many.

Nehru’s non-aligned movement under Cold War politics was the key geopolitical framework guiding the varied international collaborations that were vital to set up the engineering institutes. In contrast, the available evidence, as discussed below, points to a clear UK-US connection in the realm of management training and education, which emerged in the 1950s.

In pre-colonial and colonial India, a form of management training and education was in-built within the business castes through an elaborate means of apprenticeship and indigenous businesses were strongly controlled by families and particular castes and communities. British enterprises in nineteenth and early-twentieth century India grew through a unique organisational form called the managing agency system whereby the ‘managing agent’ provided managerial services to a diverse set of industries promoted by others, usually for a fee or a commission, but eventually through important controlling stakes (Basu 1958). The managing agents were almost entirely British, though important Indian business houses such as the Tata’s and Birla’s began their own such ventures in due course. In British firms, the unspoken norm would usually be to reserve top management for the British, middle management for the Anglo-Indians and the third rung for the Indians, as observed in the retailing giant – Spencer’s – in Madras (Muthiah 1997). In subsidiaries of foreign multinationals in India, Indians were usually third-level managers with few chances of promotion (Chowdhry 1966). A market for managerial talent was constrained by paucity of both demand and supply- Indian family managed firms rarely looked for outside management

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2 ‘Nation prepares to meet shortage of technical men,’ Times of India, 4 June, 1963.
and no system of formalised management education existed, outside courses in commerce or economics.

The first effort towards formalising management education came only after Independence, when the Council for Technical Education established the Industrial Administration Business and Management (IABM) Committee in 1948-49, chaired by Jehangir Ghandy, a senior Director in Tata Sons, the managing agency for the Tata conglomerate. The committee’s report was published only in 1953 and it made three recommendations: The establishment of a National Institute of Management to supervise management education initiatives, the establishment of a Board of Management Studies to explore university level partnerships and the setting up of an Administrative Staff College on the lines of the Administrative Staff College in Henley, UK (Hill et. al. 1973, pp. 11-13). In the same year, the Bangalore Management Association (BMA) was set up in south India and the Indian Institute of Social Welfare and Business Management (IISWBM) was set up in Calcutta as a public-private partnership between the University of Calcutta, governments of West Bengal and India and local industrialists. The year 1953 therefore constituted a watershed moment in India’s drive towards ‘making managers.’

These events and the developments over the subsequent decade are well captured in the lengthy oral history of Dr. Douglas Ensminger (1910-1989), the first representative of the Ford Foundation in the Indian subcontinent from 1951 to 1970 and a key actor of this period in the world of management training and education in India (Ford Foundation Archives 1972). Ensminger was trained as a rural sociologist and through a self-declared tact of diplomacy, keenness to understand the local context, and aversion to Communists, handled the vast range of developmental activities sponsored by the Ford Foundation in India for nearly two decades. He begins his account on management education by observing that traditional family business in India appointed members of the family to ‘look after’ industrial
plants rather than inculcating independent decision making abilities and that a similar case could be made for the civil service officers in the public sector who bowed down excessively to hierarchy.

Parallel to this observation, several Indian family-based industrialists of that time were themselves looking up to ‘modern’ methods of management, best exemplified by Vikram Sarabhai (1919-1971) in Ahmedabad. A scientist by training and member of a leading business family, he had set up the Ahmedabad Textile Industry Research Association (ATIRA) in the late 1940s within which, he established a Human Relations Division headed by Dr. Kamla Chowdhry (1920-2006), who had earned her PhD in Social Psychology from the University of Michigan in 1949. Sarabhai’s later reflections are testimony to the fact that he saw the limits in the application of scientific management principles in his factory floors and that he wanted to explore the behavioural side of organizations (Wani 2018). Both Sarabhai and Chowdhry were corresponding with leading scholars of organizational behaviour in the US, and especially with the Tavistock Institute of Human Relations in the UK, with whom partnerships were forged. Organizational behaviour was also the theme in the work of Rolf Lynton, a leading exponent of ‘training for development’, who set up the Aloka initiative to train community leaders in the 1950s, first in Sri Lanka, and then in India (Pareek 1999). Another effort was underway at the Tata group in the 1950s, where a Tata Cadre was formed (now known as the Tata Administrative Service), and in conjunction with the Staff College in Henley, ran management development programs for its managers because the firm was consciously moving away from the managing agency model (Masrani et. al. 2018). The Tavistock relationship was more on the lines of research studies on management and labour problems, while the Henley relationship was based on a methodology of training borrowed from the military service whereby participants learned by sharing their experiences.
The Henley model was adopted on a much larger scale with the establishment of the Administrative Staff College in Hyderabad in 1956, based on the 1953 Committee recommendations. In Ensminger’s account, this occurred because India launched its Second Five Year Plan in 1956 that increased the outlay towards heavy industries and the need for management education was anticipated not only in the private sector but also in the public sector. The Henley model, according to Ensminger, did not encourage innovative ideas, and the system brought to India was a perfect replica of the British model, down to the fact that the first director was a former Chief of Army Staff, General S. M Srinagesh. The Ford Foundation assisted the Staff College in India from 1958 to cater to requests for scholarships for participation of smaller industrialists and stocking the library with US management journals, but Ensminger was keen to implant American management ideas practices more firmly in India, which he believed were more likely to unlock leadership and innovative potential, especially in the private sector. Neither was Ensminger swayed by the development of management studies within the Indian university system, first in 1955 in the Universities of Delhi, Bombay and Madras and later in Andhra in 1957. He found the curricula too inflexible, the faculty salaries too uncompetitive compared to industry salaries and the impossibility of faculty to enter into consulting contracts with industry rather impractical.

Meanwhile management associations had sprung up in Bombay in 1954, in Delhi and Ahmedabad in 1955, in Madras in 1956 and in Calcutta in 1957, culminating in the All India Management Association (AIMA) set up as the nodal coordinating body in 1957. Charat Ram, a President of AIMA, was keen to mould the association on the lines of the American Institute of Management and approached Ensminger for assistance. With the help of the Ford Foundation, AIMA started a summer management development program in Srinagar in Kashmir for leading managers with technical assistance from the Sloan School of Management at MIT. Ensminger had thus established American practices at the level of
training existing managers but he still craved for management centres that would train managers from scratch, outside the traditional Indian university system.

This interest was not shared by most industrialists of that time or in the government but was supported by Sir V T Krishnamachari, Deputy Chairman of the Planning Commission, T T Krishnamachari, then Minister of Commerce and Industry and C D Deshmukh, then Finance Minister, with all of whom Ensminger had established good rapport. Further support came from the Dean of the Harvard Business School, Donald David, who was also a Trustee with the Ford Foundation. In 1955, Humayun Kabir, the Minister of Scientific Research and Cultural Affairs, had already initiated talks with the Ford Foundation in Delhi for starting a management school on the American model. With such strong backing, Ensminger arranged for two reports to be published by American management educators on the need for management institutes in India outside the university system in quick succession. The first report of 1957 was by a team from Harvard and was authored by Merriam and Thurlby and the second report in 1959 was by George Robbins, Dean of the Graduate School of Management at the University of California Los Angeles. It is instructive that in the US, management schools had been set up within the university system, whereas Ensminger was arguing for a different mode in India due to lack of functional autonomy granted within the Indian university system, itself borrowed from the British model. Here again, Ensminger was attempting to wean away the natural tendency of Indian legislators and industrialists to look towards Britain.

The Robbins report was crucial in setting the outline for a proposed ‘All-India Institute of Management’. Robbins recommended it to be regarded as a ‘high-priority national asset’ with a lot of autonomy. On the matter of student selection, he stressed the following (Robbins 1959, p.13):
“Every effort should be made to encourage applicants with backgrounds of under-graduate study in a variety of fields such as engineering, mathematics, natural sciences, social sciences and the behavioural sciences. Since the art of management is supported by all these disciplines, a student group representing a variety of them will be stronger than one with uniform experience.” The first vision of management education in India was therefore a holistic one that called for diverse backgrounds to assemble in the classroom.

Based on Robbins’ report and further round of consultations with many stakeholders, especially the Ford Foundation, two IIM’s were set up in 1961 in Calcutta and Ahmedabad, through technical collaboration with MIT’s Sloan School of Management and HBS respectively. Bombay lost out due to political bickering at the University level, Ahmedabad gained due to Vikram Sarabhai’s enthusiasm and persistence and Calcutta exerted political pressure to get its own institute. The pedagogies in IIMA and IIMC would be substantially different with HBS transplanting the case method and MIT the lecture and seminar method, but over time, both institutes learnt from each other’s methods. The case method of teaching also infiltrated the Staff College in Hyderabad due to the efforts of an appointed advisor Andrew Towl, the first director of case development at HBS. Thus, American influence reached all the major institutes of management and associations by the early 1960s. This was in line with the widespread ‘Americanisation’ of business education that was occurring around the world in the first decades after World War II (Amdam 2013).

IIMA in particular was conceived through partnerships between various stakeholders – the central government covered the annual revenue expenditure, the state government of Gujarat provided the land, industry supported the building programmes and the Ford Foundation facilitated the development of academic facilities, library and even the faculty (IIMA 1973, p. 7). As part of a five-year collaboration with HBS, Indian faculty were trained at Harvard and subsequently this led to the strong usage of Harvard pedagogical designs including the case
method at IIMA. According to Samuel Paul, Director of IIMA from 1972 to 1978, the initial HBS report that laid out Harvard’s action plan did not see it as their ‘responsibility to develop the Institute and turn it over to the Indians’ but for more cooperative efforts with mutual understanding of goals and efforts (Paul 2010, p. 74). As a result, in the 1960s there were several Indian innovations in institutional design, admission criteria, student placement methods and management development programmes that occurred outside the Harvard orbit. Institution builders such as the eminent Ahmedabad-based industrialist Kasturbhai Lalbhai, the scientist and first honorary director of IIMA, Vikram Sarabhai, the academic Dr. Kamla Chowdhry, the professional manager Prakash Tandon (Chairman of IIMA, 1964-69) and first full-time director of IIMA since 1965, Ravi Matthai, all contributed to lay strong foundations of the institute. Separately, the renowned American architect Louis Kahn was hired to design one of the most iconic university campuses of the twentieth century using red bricks and arches.

Both IIM Ahmedabad and IIM Calcutta began their first academic year of their flagship management programme in July 1964. There were legal issues over degree titles as the IIMs were founded as Societies and not directly under university regulators. IIMA did not offer MBA degrees but a Postgraduate Diploma in ‘Business Administration’, later changed to ‘Management’ in the 1970s. It would be a practice that lasted till 2018 when the IIM Bill was finally passed in the parliament.

The discussion so far has outlined the significance and dynamics of international collaboration in moulding the initial environment for engineering and management education in Independent India. An important study on the social origins of nearly 2,000 Indian managers working in large firms in the early 1960s revealed that less than two per cent had a formal management degree (Jain 1971, Table 5). Over ten per cent had a background in commerce and accounting, over twenty per cent had a background in physical and natural
sciences and a third had a background in engineering and technology. The results of a survey conducted by IIMA in 1963 on willingness to join the MBA program revealed only 28% positive cases across different educational backgrounds. The figure for engineers was 24%, that is, lower than most other educational backgrounds. The next section shows how the engineer-manager rose from this situation to total dominance by 1970.

**Selection into IIMA and the Engineering Phenomenon**

For the first incoming cohort of management students in July 1964, considerable preparations advertisements, and outreach campaigns were conducted by IIMA to attract quality students. Prospective students had to mail the institute for the application form and then send back the filled-in application form with an application fee of Rs. 10. During a review of applications in December 1963, the Admissions Committee consisting of C. N. S. Nambudiri (Chairman), V. L. Mote and Asghar Karim, reported that they had received 682 applications with the following category split- Engineering (44), Law (94), Arts (203), Science (121), Commerce (163) and Others (57). The faculty agreed that “there should be a good ‘mix’ of various disciplines and varied backgrounds and of people with and without experience in the final selection” and extra-curricular activities was given due credit by the Admissions Committee in the screening of the candidates.

Eventually, there were around 7,500 enquiries and 747 applications, of which 361 applicants were called for an interview at various centres in India, among whom 58 students joined the new programme. As described in Table 1, students with Science and Arts backgrounds

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3 HBS Archives\IIMA Records\Box 8\Folder 7\MBA Survey, 1963, Table VII.
5 IIMA Archives\FCM Minutes\Vol. 1, p. 46-48. One of these student candidates from the sciences, C K Prahalad, eventually became the batch gold medallist and later a world renowned management guru.
comprised a third each of the cohort, followed by Commerce (22%). Engineers comprised only two per cent of the applicant pool but comprised ten per cent of the selected student body. There were two female students selected in the batch. The average age of the students was 20.8 years and nearly two-thirds of the cohort had some prior work experience. Some of the students in the first cohort were sponsored by firms and the government. The selection was praised in the Institute’s annual report as “a good mix of persons hailing from various parts of India with different educational backgrounds- Engineering, Science, Liberal Arts, Commerce.”

In the second batch of students, the number of applications increased by twenty per cent but student intake was nearly doubled to 95. The share of engineers was lower than the first batch and stood at 6.3%. There was greater response from Bombay, Calcutta and Madras regions as more course-related information was made available to the colleges and universities of those places. In a faculty meeting in March 1965 it was noted that “quite a lot of time was spent in the preliminary scrutiny of applications and also in the selection of candidates through SCAT tests, case discussion and interview.” The Admissions Committee Chairman noted that “more importance was given to application and SCAT tests and not to interview.” During the year, a mathematical skill profile was drawn of each student admitted to IIMA, in the hope that this would clarify the teaching needs of the faculty. Weakness in mathematics was singled out as a big reason why some students had performed adversely in the program.

In 1966, the Admissions Committee revised the candidate evaluation procedure by assigning points for quantitative and verbal tests, interview, case discussion and screening of

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8 IIMA Archives\FCM Minutes\Vol. 1, p. 205.
9 HBS Archives\IIMA Records\Box 12\Folder 4\Mathematical Skill Profile, 1965
applications and ranked the candidates on a ‘consolidated rating scale.’ The tests and interviews were conducted from mid-April to mid-May. The share of engineers in the student body entering the institute in July 1966 shot up to over thirty per cent, even as the share of engineers among applicants rose to only twelve per cent. Consequently, the share of students from the Arts and Sciences fell.

In 1967, the share of engineering students rose to 47 per cent with nearly the same share of applicants as the previous year. In 1968 the share of engineering applicants rose to 23 per cent and in 1969 and the years after, to over thirty per cent. There were two important reasons for this critical shift in applications. First, IIMA made a ‘concerted effort’ to approach the IITs and other engineering colleges of India. Second, in 1969, an industrial recession led to more engineering students to look for non-standard options in the face of unemployment. In February 1968 itself, the *Times of India*, a leading English newspaper ran an article titled ‘Jobless Engineers.’ The article noted that there were 26,000 engineers without jobs and that the government had decided not to open new engineering colleges or technical institutes. By August 1970, it was reported that 65,000 engineers were jobless and admissions to engineering colleges had fallen by around thirty per cent. The connection between engineering joblessness and increase in applications at IIMA is also confirmed from the oral history of Dwijendra Tripathi, faculty of business history and IIMA PGP Chairman between 1968 and 1972. According to him, admission criteria had to be relooked in this period otherwise all the students would have been engineers. In 1969 and 1970, 84 per cent and 77 per cent of the student body were engineers respectively.

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10 IIMA Archives\FCM Minutes\Vol. 2, p. 105
13 ‘65,000 Engineers without jobs, says VKRV Rao,’ *Times of India*, Aug 29, 1970.
14 IIMA Archives\Faculty\Dwijendra Tripathi\Oral History Transcript.
In the faculty meeting of September 1970, the Chairman of the Admissions Committee commented on the increasing trend of engineers being admitted into the programme. He noted that “engineering and science students performed better in practically all the criteria for selection.” The selection process that year had changed from one-round to two-rounds of tests. It involved calling all eligible candidates for English and Mathematics written tests in one of nineteen centres in end-January 1970. Cut-off points were marked on SCAT scores, English test scores and previous academic performance and only those candidates satisfying all three cut-offs were shortlisted for the group discussion and interview, regardless of their cumulative score. Such a system clearly favoured the engineering students, not the least because they were used to giving similar tests before. They also had better academic grades in college than students from liberal arts and commerce backgrounds and had a relatively easier route to satisfying all three cut-offs. A second round of interviews and group discussion tests was held where weightage was also given to extra-curricular activities and work experience, but unlike in the past, the shortlisted candidates were mainly engineers because they were better placed to clear the first round. Thus, a combination of increased applications led by IIMA outreach and an industrial recession, and better preparation to take the tests, changed the profile of the student body of IIMA to one dominated by engineers, and far from the ideal laid down in the Robbins report of 1959. While reviewing the developments at IIMA over its first decade, the faculty observed that that they had pursued a ‘policy of selective admission instead of selective graduation’, where ‘no preference was given to any particular academic background’ and where the ‘search for merit is the basic prop of the selection process’ (IIMA 1973, p. 18). Merit, by 1970, however had a clear bias towards excellence in quantitative techniques.

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15 IIMA Archives\FCM Minutes\Vol. 2, p. 385.
Along with admission criteria, the method of job placements in the IIM system was also unique and lured many engineers to consider applying to the IIMs. The Robbins report of 1959 was categorical on the subject of student placement into jobs (Robbins 1959, p. 20):

“Placement should be regarded as a primary and serious responsibility of the Institute for which plans should be made at the outset. The Institute must aim to achieve placement for every student, although it cannot and should not guarantee this result or emphasize this goal as an inducement to recruitment.”

The system of placements developed at IIMA ‘had an element of innovation in the sense that the concept of campus recruitment was almost novel in India when the Institute introduced it in 1965’ (IIMA 1973, p. 22-24). 37 of the 48 students of the first batch that graduated in April 1966 availed of the Placement services.\textsuperscript{16} By December 1966, everyone was placed, with salaries ranging from Rs. 575 per month to Rs. 1,200 per month. Salaries obtained by engineering students were noted to be higher than the group average and much higher than those with liberal arts and commerce background. This set the tone for ‘placements’ at the IIMs to be one of the most lucrative ways to secure a dream high-paying career in India, and was another reason why engineers began to apply and enter the IIMs in greater numbers in subsequent years. It was not that the job market necessarily valued engineering skills in particular. Between 1967 and 1974, the percentage of students placed in Marketing jobs ranged from 39 to 51 per cent (Wadhva and Garg 1976, p. 11). And yet, by 1970, the admission criteria and returns to placement clearly favoured the engineers, who began to enter the IIM system in large numbers. Over the next four decades, their average share in the student body at IIMA stood at over 75 per cent, with a significant fraction coming from the

IITs. Having an IIT-IIM degree became in many ways the gold standard of higher education in India.

**Conclusion and Reflections on Subsequent Developments**

International collaborations were vital in ‘making managers’ in India between 1940 and 1970 with a key role played by the Ford Foundation in spreading American models of management. These collaborations were not necessarily smooth as Ensminger’s account narrates a certain amount of discord in the relationship between HBS and IIMA for a few years in the 1960s due to HBS’s attitude of parenting. The decision to not elevate Dr. Kamla Chowdhry, one of the first female management educationists anywhere in the world, to the position of Director of IIMA, has been attributed in one account to HBS sexism (Tandon 1980). However, the most important decision enforced by foreign influence, to keep the IIMs outside the university system, appears to have worked in hindsight even though it was heavily criticized by Indian educators of that time. Universities crumbled in India in subsequent decades due to state apathy and lack of functional and financial autonomy. In contrast, the IITs and IIMs set up through international collaboration continue to stand as centres of excellence even today in the landscape of Indian higher education.

The period between 1940 and 1970 witnessed the decline of the traditional managing system and greater Indianisation of the erstwhile foreign-owned firms, leading to a gradual rise in demand for Indian managers. This demand was not necessarily for those with engineering skills and yet, by 1970, the managerial elite churned out from the leading institutes of management in India were dominated by those with an engineering background. This was in stark contrast with the American system. At the Harvard Business School for instance, the share of science and engineering students hovered at around a third of the student body over
several decades.\textsuperscript{17} The persistence of the phenomenon also differs from the experience of Norway where engineering dominance reduced over time.\textsuperscript{18}

One reason for this persistence lies in the admission criteria. The two-round system of selection created in 1970 at IIMA has persisted till date with some modifications in between. By the late 1970s, a Common Admissions Test (CAT) was in place that allowed students to sit for one exam to avail admission in different IIMs and in 2009, the CAT exam was computerised and offered through various computer centres. The word ‘CAT exam’ in India has become a solid brand name, symbolic of the dream of an IIM education. Over a hundred thousand students now sit for the annual CAT exam, and it has made entry in the IIM system the most selective process across management schools in the world. And because obtaining a good CAT score is vital to getting through to the second-round, it has an aura of merit surrounding it because students simply cannot enter the IIM through the back-door. In a country marked with corruption and rent-seeking behaviour, and a large number of applications, the CAT exam has been the IIMs solution to managing student selection. It has also been beneficial for securing government mandated affirmative action whereby a large percentage of seats have been reserved for historically marginalised social groups. Lower cut-offs for CAT scores for particular social groups have ensured that reserved seats are filled, but even there, engineers dominate.

However, the inherent quantitative bias and time-bound nature of the CAT exam and its similarity to exams cleared by Class 12 students before engineering, strongly favours engineering students in acing it. While numerous CAT exam coaching centres have emerged in India, potentially offering a level playing field to students of non-engineering backgrounds, engineering students still dominate the shortlists after the first round. While earlier, students

\textsuperscript{17} HBS Archives: Various HBS bulletins.

\textsuperscript{18} See Pal’s contribution on Norway in this Special Issue.
from the IITs comprised over half of the engineering pool at IIMA, in the past decade that number has fallen to a third as students from other engineering colleges have also entered the IIM system.

The lack of diversity in educational backgrounds in the student pool at the IIMs has until very recently never been seen as a serious concern. The faculty of the IIM system have traditionally considered the meritocracy and feasibility features of the CAT exam to outweigh concerns over diversity. More importantly, the faculty of the IIM system themselves have a high engineering-component. In 2018, a third of the faculty of IIMA had engineering backgrounds and alternatively, a third had at least one degree from the IITs. The IIT-IIM system, collectively, therefore marks a strong network among students and faculty giving solid informational advantages to succeed in both worlds.

However, over the past four decades, not all IIM faculty have looked on to the system kindly. V. S. Vyas, Director of IIMA from 1978 to 1982, recollected the following in 1994 (IIMA 1994, p. 15):

“Right from the time I joined IIMA, I was among those faculty who did not approve the dominance of engineers, and that too the IIT-trained engineers in the student body of IIMA. When I had the opportunity to influence admission policy, I persuaded my colleagues to give higher weightage in admission to arts and science graduates. But to my dismay I found that though the proportion of the non-engineering students did increase, the latter came mainly from prestigious institutions…presumably from elite households. The objective of bringing talented boys and girls from mufassil [rural or small-town] colleges to IIMA did not succeed.”

The engineering phenomenon has persisted even as the major sectors of recruitment in the job placement system have changed. At IIMA, General Management and Finance & Accounting
accounted for 15 per cent of job placements each by 1974, whereas Production Management and Operations Research, two areas with strong requirements of quantitative skills accounted for only ten per cent of the jobs. In the 1970s and 1980s, the public sector emerged as an important recruiter, especially of engineers, often recruiting up to a fifth of the graduating cohort. Among those placed in the class of 1995, half were in the private sector, a third in multinationals and a fifth in the public sector.\(^\text{19}\)

In the 1990s and 2000s, the financial sector began to dominate the placements and opportunities for international assignments with investment banks and hedge funds were routine. In 2004, a third of the batch was placed overseas.\(^\text{20}\) The financial sector’s dominance waned after the global financial crisis of 2008 and gave way to ‘Consulting’ as the main sector where students aspired to work in. In 2016, Consulting (29%), Finance (17%), Sales & Marketing (14%), IT (8%) and General Management (7%) accounted for the bulk of the jobs accepted by students through the Placement Office of IIMA.\(^\text{21}\) All through, engineers, especially from the IITs secured the best of these jobs, whether in Marketing, Finance or Consulting, essentially due to their ability to master the CAT exam and enter the IIM system. In this, the strong alumni networks of IITs and IIMs have also mattered in creating important demonstration effects and pathways for information to flow through.

Since 1970, several other developments have taken place. A new IIM was set up in Bangalore in 1973 and then several more were set up to take the tally up to 20 IIMs across India in 2018. Similarly, the number of IITs now stands at 23, some of them completely new while some existing universities were rechristened as IITs. The 20 IIMs and 23 IITs constitute the

\(^{19}\) IIMA Annual Report, 1994-95.


\(^{21}\) IIMA Annual Report, 2015-16, p. 86.
public sector’s might in higher education in India with strong brand value. They also follow strong affirmative action policies at the student level.

Since liberalisation and economic reforms in India in 1991, the number of private business schools and engineering colleges has also grown tremendously. As per the annual reports of the All India Council for Technical Education, the number of engineering colleges and technical institutes grew from 1,451 in 2006 to 3,461 in 2016 and the annual intake grew from nearly half a million students to nearly two million students in the same period. In 2016, there were 3,452 institutes offering management degrees with an annual intake of close to half a million students. Unfortunately, further statistics on the composition of the management graduates are not available but there is good reason to believe that many MBA students and aspirants are in fact, engineers.

This paper has documented the engineering-manager nexus created by a particular set of circumstances at IIMA. The experience of IIMA closely mirrors that of the other IIMs where engineers account for around nine-tenths of the student body. But why should engineering dominance be a matter of concern for India’s leading management schools?

There are at least two reasons why it matters. First, as pointed out by Robbins and Vyas earlier, classroom discussions and later on, managerial perspectives in top management are seriously constrained by an engineering-only world view. This view often consists of linear thinking, which, in the Indian context is also the outcome of substantial rote learning, reducing prospects of innovative thinking.

More pertinently, the lack of diversity in educational backgrounds has had a direct fallout on the lack of gender diversity in Indian management schools where after five decades, the share of female students in the intake remains low at under twenty per cent. The three IIMs that feature in the Financial Times ranking of the Top 100 Business Schools have extremely low
ratings on gender diversity among students (and faculty). In contrast, at HBS, around forty per cent of the intake now comprises of women. Since engineering colleges in India have a skewed sex ratio favouring boys, the influx of engineers into the IIMs and from there to leading managerial roles, is also dominated by men.

It was only in 2015, that a serious reorganisation of the CAT exam took place to increase diversity in the student body of IIMA, which is now beginning to produce results. In 2017, the share of engineering students in the incoming batch at IIMA dropped to seventy per cent and the share of female students rose to an all-time high, close to thirty per cent. India’s experience shows that in addition to international collaborations, specific contextual factors such as admission criteria and job placement processes at leading management schools have also influenced the manner in which specific types of managers have been created.

References


Robbins, George. 1959. *Recommendations for an All-India Institute of Management*.


Table 1: Background of Students in the flagship two-year MBA-equivalent degree at IIM-Ahmedabad

<table>
<thead>
<tr>
<th>Year of Entry</th>
<th>Number of Applications Received</th>
<th>Number called for interview and tests</th>
<th>Number joined the programme</th>
<th>Arts %</th>
<th>Commerce %</th>
<th>Science %</th>
<th>Engineering %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>747</td>
<td>361</td>
<td>58</td>
<td>39.4</td>
<td>31.0</td>
<td>30.1</td>
<td>22.4</td>
</tr>
<tr>
<td>1965</td>
<td>922</td>
<td>448</td>
<td>95</td>
<td>40.6</td>
<td>39.0</td>
<td>22.5</td>
<td>14.7</td>
</tr>
<tr>
<td>1966</td>
<td>1,682</td>
<td>513</td>
<td>87</td>
<td>37.3</td>
<td>26.5</td>
<td>21.4</td>
<td>16.1</td>
</tr>
<tr>
<td>1967</td>
<td>1,710</td>
<td>471</td>
<td>112</td>
<td>28.5</td>
<td>17.9</td>
<td>23.7</td>
<td>10.7</td>
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<tr>
<td>1968</td>
<td>2,321</td>
<td>539</td>
<td>118</td>
<td>22.9</td>
<td>11.0</td>
<td>18.4</td>
<td>9.3</td>
</tr>
<tr>
<td>1969</td>
<td>3,110</td>
<td>589</td>
<td>116</td>
<td>16.6</td>
<td>9.5</td>
<td>15.5</td>
<td>1.7</td>
</tr>
<tr>
<td>1970</td>
<td>2,899</td>
<td>603</td>
<td>125</td>
<td>13.0</td>
<td>6.4</td>
<td>14.0</td>
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<tr>
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<td>4,694</td>
<td>512</td>
<td>120</td>
<td>12.4</td>
<td>8.3</td>
<td>13.5</td>
<td>4.2</td>
</tr>
<tr>
<td>2015</td>
<td>157,482</td>
<td>1,255</td>
<td>396</td>
<td>1.0</td>
<td>8.0</td>
<td>4.0</td>
<td>46.0</td>
</tr>
</tbody>
</table>

Source: Various IIMA annual reports and internal reports in the IIMA Archives