CHAPTER 2: KNOWLEDGE MANAGEMENT: ORIENTATION AND APPLICATION TO BUSINESS SCHOOLS

2.1 Introduction
This chapter begins with a brief introduction to the current importance of Knowledge management in regard to the status of higher education in India. It includes an exploration of the nature, history and evolution business schools globally and in India. The chapter further includes a study of the economic nature of Knowledge as an asset and resource. The chapter then enquires into what constitutes Knowledge in the context of industry, academic institutions and business schools. An investigation of the relevant practical applications of Knowledge management follows.

2.2 Higher Education in India and KM applications
There are four important debates that face the world as indeed face India at this time. These are:

- Polarity (Disparity)
- Environmental degradation
- Health status elevation
- Education elevation

All 4 are interlinked and of a critical nature with deep foreboding for the future. At the base all four are about the quality of life. Interventions in any one will have its influence on the others.
Education elevation has to be understood, appreciated and then methodically planned and monitored in other words it has to be managed.

This means Knowledge must be managed. It is this light that Knowledge Management becomes relevant to the elevation of worldwide human life standards.

Writing on ‘The Future of Knowledge’ in the Times of India, India’s current Union Minister for Human Resources Development, Mr Kapil Sibal said, “India’s Gross Enrollment Ratio (GER) is a meager 12.4% i.e. for every 100 children who pass std.XII only 12.4 obtain a university education. Any developed economy has a GER above 40%, and in most developed economies, this is above 60%. Economic growth therefore is directly related to the number of children who move from secondary to higher education.

This is because universities and institutions of higher learning and excellence are centers of creation of Knowledge, which translates into wealth, the indices of which are reflected in the economy.

The most easily understood, generalized definition of Knowledge economy is, an economy that creates, disseminates and uses Knowledge to enhance its growth and progress. The Knowledge economy is often and rather erroneously taken to mean only high-technology industries or Information and Communication technologies (ICTs).
The full connotation of the term, Knowledge Economy’ covers any economy which harnesses and uses new and existing Knowledge to improve the productivity of agriculture, industry and services and increase overall welfare.

In India, great potential exists for increasing productivity by shifting labor from low productivity and subsistence activities to new Knowledge based activities.

India has many of the key ingredients for making this transition:

- Critical mass of English speaking Knowledge workers, especially in sciences
- A well functioning democracy
- One of the world’s largest domestic markets
- An interesting diaspora creating valuable Knowledge linkages and networks
- Macroeconomic stability
- A dynamic private sector
- Developing financial sector
• Broad and diversified science and technology infrastructure

• A recently developed Information and Communications Technology (ICT)

• An Information Technology Business Leader

The Planning Commission Reports on India as Knowledge Superpower: Strategy for Transformation (2001a) and India vision 2020(2020a); President A. P. J. Abdul Kalam’s 2002 Strategy India 2020: A Vision for A New India (Kalam and Rajan 2002) and the High Level Strategic Group’s India’s New Opportunity 2020 (AIMA 2003) underline India’s transition to the Knowledge economy.

As pointed out by the World Bank Institute, India’s readiness to embrace the Knowledge economy rests on four pillars:

• Strengthening the economic and institutional regime
• Developing educated and skilled workers
• Creating an efficient Innovation System
• Building a dynamic information infrastructure

The laws regarding Intellectual Property Rights (IPRs) in India need to be strengthened and enforced.
Education as the fundamental enabler of the Knowledge economy needs to be fostered with a great deal of foresight and planning.

Education is a fast growing sector in the economy and can attract a massive USD 100 Billion investment over the next five years driven by the demand for skilled professionals and the need for infrastructure development. Education has been identified as a preferred sector for venture capitalists and private equity players. (Economic Times, Pune edition, January 11, 2010, page 11)

In 2002 the Government of India included the Right to Education as a Fundamental Right. The Right to Education Act was passed in 2009. The population of India in 2008 was in excess of 1,000,000,000 (1 Billion). The median age is 24.8 years. 25% of the population is in the age group of 18-24 years. Only 7% of this age group 18-24 years goes in for higher education. This is half the average for Asia as a whole. 300,000,000 (300 million or 30% of population) Indians cannot read their own name. India’s literate population equals all the people in USA. In India, on any given day in 2008 there are 290 million students attending classes somewhere. This number is more than the population of any country in the world except China, India and USA. These are in schools, colleges, universities and vocational courses in diverse streams. These students are guided by 6.3 million teachers.

In 1961 28% Indians were literate; in 2006 there was a 40 percentage point increase to 66%, an impressive jump of 40 percentage points. It has taken
sixty years since India became an independent country in 1947 but the sheer numbers involved and the complexity is truly enormous. 380 million people are still illiterate. This is the largest number of illiterates in any one country, more than the total population of India at the time of independence.

The total number of children and youth in the age group of 6 to 24 years is 460 million. Only 63% are studying and 170 million potential students are left outside the education system.

In the high income countries, 92% of children in the age group of 5 to 24 years study. In middle income countries, this share is about 73%. While in the low income countries it is 56%. China’s figure is comparable to India’s at 69%, Russia stands at 89% and Brazil 88%.

Statistics reveal only a few of the dramatic changes that have taken place in the Indian education system in the past couple of decades. Enrollment in all types of education has risen dramatically. People generally aspire to send children to school unlike earlier times when they had to be persuaded to do so.

In higher education there has been a 70 fold increase in enrollment. In 1961 there were only 170,000 students pursuing education beyond class 12. Now the number touches 12,000,000.

There are 350 universities. This means that each university must take on 2,00,000 students at post graduate level. It is estimated that based on need we will need 1500 universities by 2015. Even if the number of students who do go in for post graduate programs remains static at 70,000,000 the number of students that each University will have to enroll in all disciplines
is in excess of 46,000. But what is aimed at is an increased gross enrolment to 15% by 2015.

Poverty is not the only reason for people to opt out of the education system and start work. There are four great divides that slice up Indian society and pervade every aspect of life including education. These are:

- Rural-urban
- Men-women
- Rich-poor
- Caste.

With these challenges Knowledge Management becomes an important national agenda.

2.3 Overview of Business Schools

Business schools principally nurture professional talent, for business as well as for the management of other kinds of organizations like government organizations, non-government organizations and specialized professional organizations like health care, hospitality, banking etc. It has often been argued that the term ‘business school’ is a misnomer since it connotes a more limited scope than the inherent nature of business school. The term management school would be more appropriate.

In the context of this thesis, the commonly used term business school covers the larger management perspective as well.
The MBA (Master of Business Administration) degree, and in more recent times the BBA (Bachelor in Business Administration) degree are the most well known, (both being almost generic terms) product of the business school, although there are a host of comparable and allied degrees and diplomas available. In general the connotation of the MBA degree is understood globally.

According to one source, the MBA degree originated in the United States of America in the late 19th century as a natural concomitant of the country’s industrialization and consequent need for scientific management. The core courses in the MBA program are designed to introduce students to the various areas of business such as accounting, marketing, human resources, operations management, etc. Students in some MBA programs have the option to select an area of concentration and focus. MBA programs tailored for full-time, part-time, working executives and distance learning students exist.

The first graduate school of business in the United States of America was the Tuck School of Business, part of Dartmouth College. Founded in 1900, it was the first institution conferring advanced degrees (masters) in the commercial sciences, specifically, a Master of Science in Commerce degree, the forebear of the modern MBA degree.

In 1908, the Graduate School of Business Administration (GSBA) at Harvard University was established; it offered the world's first MBA program, with a

The University Of Chicago, Booth School of Business first offered working professionals the Executive MBA (EMBA) program in 1940, and this type of program is offered by most business schools today. In 2010, Indian born Sunil Kumar took over as Dean.

The Institute of Business Administration, Karachi in Pakistan was established in 1955 as the first Asian business school by the Wharton School of the University of Pennsylvania.

In 1957, INSEAD became the first European business school to offer an MBA program. This was followed in 1964 by IESE (the first two-year program in Europe), UCD Smurfit Business School in 1964, Manchester Business School and London Business School in 1965.

The first management school IISWBM (at inception the institute was called 'All India Institute of Social Welfare and Business Management') was established in 1953 at Kolkata. The first IIM (Indian Institute of Management) was established in Calcutta in 1961. IIMC was the first institute in the country run by Government of India that provided Post-Graduate studies and Research in Management. The institute was established in collaboration with MIT Sloan School of Management, the
Government of West Bengal, The Ford Foundation and Indian industry. Till date there are seven IIMs in India.

Besides the six IIMs that are located at Bangalore, Ahmadabad, Kolkata, Lucknow, Indore, Kozhikode and Shillong there are hundreds of other business schools in India.

**Table 2.1 Growth of Business Schools**

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>1898</td>
<td>USA</td>
<td>Chicago University’s Business School</td>
</tr>
<tr>
<td>1900</td>
<td>USA</td>
<td>Amos Tuck at Dartmouth, New Hampshire</td>
</tr>
<tr>
<td>1908</td>
<td>USA</td>
<td>Harvard offers MBA</td>
</tr>
<tr>
<td>1919</td>
<td>USA</td>
<td>Harvard Business School</td>
</tr>
<tr>
<td>1959</td>
<td>France</td>
<td>INSEAD</td>
</tr>
<tr>
<td>1965</td>
<td>UK</td>
<td>Manchester Business School</td>
</tr>
<tr>
<td>1965</td>
<td>UK</td>
<td>London Business School</td>
</tr>
<tr>
<td>1961</td>
<td>India</td>
<td>IIM Calcutta (now Kolkata)</td>
</tr>
<tr>
<td>1961</td>
<td>India</td>
<td>IIM Ahmadabad</td>
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<tr>
<td>1973</td>
<td>India</td>
<td>IIM Bangalore</td>
</tr>
<tr>
<td>1984</td>
<td>India</td>
<td>IIM Lucknow</td>
</tr>
<tr>
<td>1998</td>
<td>India</td>
<td>IIM Indore</td>
</tr>
<tr>
<td>2001</td>
<td>India</td>
<td>IIM Kozhikode</td>
</tr>
<tr>
<td>2008</td>
<td>India</td>
<td>IIM Shillong</td>
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</tbody>
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The 11th Five Year Plan of India proposed 7 new IIMs by the end of 2012. Of these, the government has announced plans to establish 6. These IIMs will come up in the states of Jammu & Kashmir, Tamil Nadu, Jharkhand, Chhattisgarh, Raipur, Uttarakhand and Haryana.

Table 2.1 Growth of Business Schools

In 2010 there are around 1600 business schools in India. About 100,000 MBAs pass out each year. This is among the highest number of MBAs globally. As a sidelight, 450,000 Indian students went abroad for higher studies in 2009. 20% or 90,000 of these went for management education (Rao, S. L., Need to Renovate Management Education; Indian Management
The students are a mix of fresh graduates without any work experience and people with good work experience. Among those schools, the Indian Institutes of Management (IIM) are the oldest institutions for management education in India. Admission to any of the IIM schools requires passing Common Admission Test (CAT), however other business schools require passing either CAT, XAT, GMAT, JMET or MAT.

Apart from these entrance tests there are business schools which conduct tests individually which qualifies candidates for that particular business school. The IIM and other autonomous business schools offer a post-graduate diploma in management (PGDM) or Post Graduate Programme in Management (PGPM) which is recognized in India as similar to an MBA degree. Government accreditation bodies such as AICTE established that autonomous business schools can offer only the PGDM or PGPM, whereas a post-graduate degree can be awarded by university-affiliated colleges, in two-year full-time program.

Pune which has been called the Oxford of the East, has 56 AICTE recognized business schools and a few are constituents of four deemed universities at the time of writing.

2.4 What Constitutes Knowledge in Business Schools

A survey of available literature on Knowledge Management throws up the comparatively recent origin and relative paucity of literature on either
Knowledge or Knowledge Management as relevant to academic institutions. Implicitly therefore there is even less published material on applications of Knowledge Management to Business School.

Swan and Scarbrough (2001), in their editorial introduction to a special issue of the Journal of Management Studies on Knowledge Management, lament what they term the ‘unreflexive’ and ‘uncritical’ nature of mainstream literature on Knowledge Management. The literature, they say is objectivist because Knowledge is seen as a purely economic commodity, it has predominantly managerial overtones and is purely prescriptive in nature concerning how Knowledge can be managed rather than can or should Knowledge be managed. The views of these authors are echoed by Edwards et al. They opine that Knowledge conceptualized as what it is, in popular management literature is generally weak, sloppy, contradictory and does not stand up to rigorous criticism. Alversson and Karreman (2001) provide a table of Problems with conceptions of Knowledge in ‘popular’ Knowledge Management Literature.
Table: Problems with Conceptions of Knowledge in the ‘Popular’ Knowledge Management Literature

<table>
<thead>
<tr>
<th>Problem</th>
<th>Problem Description</th>
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<tbody>
<tr>
<td>Ontological Incoherence</td>
<td>Blending together of incompatible constructivist and objectivist views of knowledge-for example Nonaka (1994)</td>
</tr>
<tr>
<td>Vagueness</td>
<td>Lack of distinctness regarding the content and character of knowledge in organizations</td>
</tr>
<tr>
<td>All-embracing and Empty View of Knowledge</td>
<td>All-encompassing definitions of knowledge have little clarity and make possibilities for conceptual insights difficult-for example Davenport &amp; Prusak (1998)</td>
</tr>
<tr>
<td>Objectivity</td>
<td>Typically utilize objectivist definitions of Knowledge unproblematically</td>
</tr>
<tr>
<td>Functionalism</td>
<td>Unproblematically assumes that having Knowledge and managing Knowledge is a good thing and neglects to deal with potential negative aspects of both having or managing Knowledge; Knowledge as simultaneously enabling and constraining</td>
</tr>
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Table 2.4i: Problems With Conceptions of Knowledge

Hislop makes a reference to Business Schools and the work of Suddaby and Greenwood (2001) when he writes about the role of business schools in the cycle of production, distribution and consumption of management Knowledge.

Suddaby and Greenood write about the cycle of Knowledge production and consumption. They present a field level analysis of the process by which management Knowledge is produced and consumed. It involves a complex interaction via a number of discrete, but interrelated processes of a diverse range of actors, including business schools, individual academics, gurus, consulting companies, and large professional service firms.
The cycle does not represent a simple stage model, in which the production and consumption of management Knowledge occurs in neat, independent and sequential stages. Instead all the processes occur simultaneously, as they indeed do in actuality, with the process of legitimating undertaken by Gurus as the starting point in the production of a new body of management Knowledge.

The earliest reference that was found in the course of this research was published in 2000. Specific applications for business schools was almost surely non-existent even in 2008, although it is these very schools, among all academic institutions, that actually teach Knowledge Management for corporate organizations in their programs.

Garvin makes a mention of how Business Schools may teach Quality Management (QM), Enterprise Resource Planning (ERP) and Knowledge Management (KM) but are not themselves practitioners of the same. According to Hislop, most of the relevant literature laments the fact that there is little recognition of the need for Knowledge Management in academic institutions especially those in higher education.

Organizations have traditionally sought to gain and sustain competitive advantage through critical tangible resources. In recent times the importance of Knowledge as a resource which is valuable, and lends distinctive competitive edge has been emphasized.
A contrarian argument is put forth by Fuller. Fuller (2002) argues that, ‘the dark secret of this field (Knowledge Management) is that the name is an oxymoron, for as soon as business enters the picture, the interests of Knowledge and Management trade off each other’. Ultimately he argues that the interests of business in making short term economic gains from the use of Knowledge, clash with other objectives and outcomes from the use of Knowledge. However for all academic institutions and indeed for Business Schools, their business itself is Knowledge and no trade offs are necessary except perhaps where the institution has dominantly pecuniary goals.

In recent times Human Resources are especially valuable to Knowledge-based institutions of which Business Schools are a subset, because of their ability to create, use and share Knowledge.

In this study a view is taken on how management Knowledge is used, commoditized, produced, diffused and consumed.

Hislop argues that a consideration of the type of people and organizations that are key in such processes, with a particular focus on the role of academics, business schools and universities is warranted because the role of the university sector has been relatively neglected in such processes and also because its role has been changing dramatically in recent years.

Regarding what is taught at business schools there has been some criticism in recent years. There is a paucity of teachers both qualitatively as by
numbers. There is less interaction between industry and business schools. Several celebrated and discussed papers including Henry Mintzberg (Managers not MBAs), Rakesh Khurana (From Higher Aims to Hired Hands), R C Bhargava committee report have emphasized this point. Industry is shy of engaging with business schools, preferring instead to consult expensive and celebrated management consultants. Despite increasing wealth within the Indian corporate sector, there is less impact in the higher education and business education.

Devesh Kapoor, director, Center for The advanced Study of India, University of Pennsylvania writing on the Business of Knowledge in the Times of India (November 6, 2009) says, “it is extraordinary how much energy and capital Indian corporate titans are willing to commit to summits, conclaves and the like, where photo opportunities and power-point presentations pass off as the epitome of deep thinking and real insight. Yet, for all the posturing by Indian business elites and their courting of universities in the West (especially in the US), the notion of Indian business coming together to fund research centers that produce Knowledge and provide quality education accessible to all sections of society does not seem to be on the horizon.

Dr Devi Singh, Director IIM Lucknow speaking to Economic Times in an interview said that an environment of research needs to created in business schools with industry interaction, research incentives, mandatory
research, collaborative research, faculty exchange programs and international conferences.

2.5 Knowledge Management in Business Schools: Scope & Importance

There is increasing pressure internally and outside the schools for improvements and accountability in management education. Also, the business information universe is so dynamic and all pervading that there is an ongoing race to keep abreast. Educational Institutions are now seeking to understand only too well that Knowledge is their key asset and must be used effectively for better decision making and efficient actions. With paucity of faculty as well as greater integration needed for relevant and meaningful research and solutions, it is necessary to document Knowledge, make it available and accessible as well as create a depository to leverage. It is necessary to create a suitable ecosystem in which there have to be the intellectual construct, the infrastructure construct and more importantly the correct social construct.

According to a Anil K. Gupta the Ralph J. Tyser Professor of Strategy at Smith Business School at the University of Maryland and Haiyan Wang the managing partner of the China India Institute, Co-authors of Getting China and India Right (Jossey-Bass/Wiley, 2009), economic power is shifting rapidly from the West to the East—especially to China and India. China appears destined to become the world's largest economy by 2025. India, trailing China by about 12 years, will rank among the world's top three or
four by then. By 2025, China and India will also likely account for well over 100 of the world's 500 largest companies, up from 36 today.

Where will the corporate leaders of these new economies come from?

Are the leading business schools in China and India up to the task, or will the grooming of tomorrow's global leaders be done primarily at institutions such as Harvard, Stanford, and INSEAD? - are pertinent questions asked by these authors. Business Schools in India are part of the Technical education system. The foundation of present day Technical Education System in India was laid during 1840's with the establishment of technical institutions at Roorkee, Madras, Calcutta and Pune.

The All India Council for Technical Education (AICTE) was established in 1945 as an Advisory Body in all matters of Technical Education. Technical Education in India gained momentum after independence in 1947.

Full policy support and substantial funds have been provided by GOI and the States to create one of the world’s largest systems of technical education. As a result of this, the country has witnessed enormous growth in technical education facilities during the past 60 years.

The Constitutional Amendment of 1976 places education, including Technical Education in the concurrent list. This calls for greater responsibility on part of both the States and the Centre for integrated
development of technical education sub-sector. They have to meet the challenge of heavy demand of professional courses in the institutions directly funded by them and also ensure quality education both in the Government funded and in the private self financing professional and technical educational institutions growing at faster pace.

In 1987, the All India Council for Technical Education (AICTE) was vested with statutory powers through an Act of Parliament with a view to the proper planning and co-ordinated development of the Technical Education System throughout the country, the promotion of qualitative improvement of such education in relation to planned quantitative growth and the regulation and proper maintenance of norms and standards in the Technical Education System and for matters connected therewith.

Besides, the Central Government by an Act of Parliament in 1956 established the University Grants Commission to make provisions for the Co-ordination and determination of standards in Universities.

The Bureau of Technical Education (BTE) in the Ministry of Human Resource Development (MHRD) remains the apex authority in the country. Indian Institutes of Management (IIMs) located in seven cities (Ahmedabad, Bangalore, Calicut, Kolkata, Indore, Lucknow and Shillong) are institutions of excellence established by the BTE with the objective of imparting high quality management education and training, conducting research and providing consultancy services in the field of management of various
sectors of the Indian economy. India currently has around 1,300 and more
business schools (B-schools) approved by All India Council for Technical
Education (AICTE) as the management education movement is nearing its
fifth decade.

Yet not a single school happens to be among the top 50 in any international
rankings. According to the Financial Times' 2009 rankings, China and India
account for only one school each among the top 100 MBA programs in the
world, as contrasted with 56 from the U.S. Even these two (the China
Europe International Business School and the Indian School of Business) are
the products of Western alliances. None of the top two purely Indian MBA
programs (IIM Ahmedabad and IIM Bangalore) or the top two purely
Chinese MBA programs (Tsinghua University's School of Economics &
Management and Beijing University's Guanghua School of Management)
make it into the FT Global 100 list. And Indian B-schools are reporting
disappointing job-placement numbers for their graduates as the global
recession dampens demand from would-be employers.

Of the many B-school rankings conducted in India every year, parameters
stressed are infrastructure, education process, management development
programs, academic programs, social responsibility, placement and industry
interface. Even the best of the B-schools including IIMs, excelling in many of
these parameters, today have a shortage of faculty and lack in research.
Quality is something that the B-schools need to focus on in order to measure up renowned schools in the West. The accreditation principles of B-schools are based on best practices in business education, maximizing value addition.

National Assessment & Accreditation Council (NAAC), an autonomous body set up by government in 1994, is one of the two agencies providing accreditation. National Board of Accreditation (NBA) constituted by the All India Council for Technical Education (AICTE), is the other body extending accreditation to institutions. While the purpose of the two agencies is to ensure quality, their present framework focus more on the input side requiring the institutions to comply with the minimum requirements necessary for teaching-learning process. The participation level for accreditation must increase.

According to Gupta and Tyser, notwithstanding the apparent dominance of Western—especially American—business schools, the odds favor the top business schools from within China and India for the following reasons:

- First, student quality at the top Indian and Chinese business schools is superb and getting better. Sheer population numbers give these schools an advantage in the intellectual caliber of incoming students. Numbers dictate that it is harder to get into a top business school in India or China than into a similarly ranked school in the U.S. or Europe. Current Chinese MBA students, virtually all born after 1978, grew up in the reform era,
have been learning English for years, and have been heavily exposed to the market economy. They are also much more willing to challenge the status quo, a requisite for becoming innovative.

Increasingly, Chinese students can also draw inspiration from domestic business heroes such as Jack Ma, founder of Alibaba Group.

• Second, domestic salaries received by graduates of the top MBA programs in both China and India are rising and becoming competitive with their counterparts in the West. At the top three MBA programs in both India and China, average starting salaries for domestic jobs range from $30,000 to $50,000. Adjusted for purchasing power parity, these salaries are on par with or higher than those earned by the graduates of the top Western MBA programs. As income levels in China and India continue to rise faster than in the West, it is likely that the salaries earned by the graduates of the top MBA programs will also move up at a faster pace. Attractive salaries and abundant job prospects would suggest that the indigenous MBA programs will become even more attractive to the top domestic applicants in the coming years.

• Third, it is now virtually impossible for any school to maintain a competitive advantage based on the curriculum. Given the Internet, every school has real-time access to the curriculum being followed and course materials being used by every other school. Most of the top business schools in the world (including those in China and India) routinely monitor curricular innovations at other schools and revise
their own curricula every three to five years. Another factor driving toward parity in curriculum innovation is the growing number of Chinese and Indian PhD graduates who are returning to their homelands to take up faculty positions. Nearly half of the faculty at Tsinghua University's School of Economics & Management earned their PhDs from Western business schools.

- Fourth, context matters. Unlike in the U.S., state- and family-owned enterprises constitute the large majority of corporations in both China and India. In both economies, market realities too are radically different from those in the U.S. Average per capita income in China is about one-fifteenth and in India about one-fortieth of that in the U.S. Given vast rural populations, the market for almost every product or service in China and India is also far more diverse than that in the U.S.

Leading indigenous MBA programs are able to provide much greater exposure to these contextual realities than Harvard or Stanford ever could. One U.S.-trained partner at the Mumbai offices of one of the world's leading strategy consulting firms told Gupta and Tyer: "We have direct experience with MBAs from the top Indian schools as well as returnees with degrees from the top Western schools. American MBAs are better packaged. However, the Indian MBAs are much stronger analytically and have more in-depth understanding of the Indian business environment. On average, the latter tend to be more successful for us. The importance of
context also shows up in that our Europe-educated MBAs tend to perform better in India than those from the U.S."

Notwithstanding these advantages, even the top MBA programs in China and India suffer from two major weaknesses:

One, their student body is much less diverse than at top MBA programs in the West. Harvard's annual intake of 900 students comes from over 70 countries. Stanford draws its annual pool of about 370 students from over 50 countries. Greater diversity fosters richer class discussions and a more global network of contacts. This is one area where the leading Western business schools will continue to sustain an enduring advantage.

Two, in terms of faculty research, even the best Chinese and Indian business schools pale in comparison with any of the top 25 Western business schools. Building the necessary research culture and assembling a critical mass of top scholars requires resources and even then can take years. Here too, top Western business schools are likely to sustain an enduring advantage. In terms of a business school's ability to train corporate leaders, however, the quality of faculty research may not be as critical as it may appear. Graduates of the Indian Institutes of Technology have been spectacularly successful at climbing the top rungs of Corporate America despite the fact that, until recently, the IITs have been primarily teaching rather than research institutions.
Looking ahead, it is clear that history is on the side of the top business schools from India and China. Their biggest challenge will be to turn superb teaching institutions into research powerhouses as well.

The rise of China and India also offers an opportunity to the leading Western business schools. They must commit to becoming insiders within China and India. Context matters, and the best way to develop a deeper understanding of China and India and to broaden the alumni network within these economies is to partner as well as compete with the dragons and tigers on their home turf. The fastest and most effective way to do so without running into capacity problems will be via non-degree executive education programs.

2.6 Education-Employment-Industry: Economic and Institutional Regime

The changing economic scenario has resulted in education-particularly at university level giving a high rate of return at the individual and societal levels. Since the primary and secondary systems have been strengthened, the demand for higher and professional education has received a fillip. The eleventh five year plan has been called an education plan.

If the primary goal of education is employment then it is ludicrous that a recent National Sample Survey Report found that youth unemployment was highest at around 20% among graduates, postgraduates, technical diploma or certificate holders. The current unemployment is 6% for this age
group. So the educational qualifications, employment requirements and number of jobs created for this age group do not match. Beyond numbers, it is clearly a question of relevance of education as it relates to suitability for employment. There is a serious misalignment between education and employment as can be seen for the IT/ITES industry as an example, below.

NASSCOM [National Association of Software and Service Companies (India)], is the premier trade body and the chamber of commerce of the IT-BPO industry in India. According to NASSCOM, in 2006, IT exports were at Rs 1,070,000,000,000 (107,000 crores or 1070 billion INR).

The projection for 2010 is over 2.5 times this figure i.e. 2,850,000,000,000 (285,000 crores or 2850 billion INR). For achieving this 2,000,000 more jobs will have to be created. NASSCOM estimates show a shortfall of 5,00,000 engineering graduates each year. Annually 11 million or 1.1 crore students, which includes 3,000,000 engineering graduates, are added to the workforce. Only 25% or 7.5 lakh of this graduating population can be absorbed by IT/ITES as they are hirable the rest do not measure up to industry requirements. The employability of graduates is even more appalling by numbers. Infosys retrains 10,000 new recruits at a mega-campus in Mysore at a time. Tata Consultancy Services (TCS) undertakes retraining of thousands of science graduates so that they measure up to their requirement as software professionals. Infosys Technologies has started its own massive training facility in Mysore.
Factors that contribute to this malaise have been identified as outdated curriculum, lack of soft skills like ability to analyze, discuss, innovate and communicate, teachers who do not update their Knowledge base, institutional management that lacks commitment to academic excellence, rote learning and exam-oriented teaching, lack of activity based learning through team effort, students are not taught to discuss, analyze, discuss, innovate and communicate.

Further, on the supply side there are issues of availability of quality faculty. Traditions of faculty nurturance and development to create faculty talent is of critical importance but the dearth of such measures is much lamented even in the popular media and that too even for excellent institutions like IITs and IIMs. Institutions which are not in the same league suffer immensely from a rarified present and a bleak future. As compared to industry, compensation lags behind woefully in the education sector.

The Boston Consulting group came up with a report on India’s Demographic Dilemma on December 18, 2008. The report stated that there is a staffing paradox in India- on the one hand the economy will struggle to find skilled and qualified talent to fuel growth, on the other we have over a million people without the ability to participate in the workforce which is the making of demographic disaster.

The strict norms issued by regulatory authorities are now sought to be loosened to meet the needs of globalization.
There are complex socio-economic issues that impact and polarize education status in India. The reasons for dropouts are many, complex and inter-linked. Poverty is certainly one of the factors, others factors for polarity are urban-rural, male-female, rich-poor and caste. Predictably women, scheduled castes and tribes, agricultural laborers and small farmers all have lower literacy rates, lower enrollment rates and higher dropout rates. Over the 60 years despite quantum improvements equal access remains a major issue.

If India has to remain competitive, and secure its position as a global leader, the higher education system of the country as it stands today, will require a systematic, urgent and vital overhaul. The World Bank Institute has called for improving the operating environment for education, especially higher education, which calls for a shift in the role of the government from managing the administrative aspects of higher education to becoming an architect of education standards and regulations, including improving and monitoring the quality of academic programs, establishing accreditation standards and procedures, ensuring equity, and coordinating a system with multiple players and multiple pathways to learning.

The major responsibility lies with the government in providing the regulatory framework, resources and accountability for both numbers and quality in education.
The government spending on education at all levels in 2006-7 stands at 1,330,000,000,000 (1.33 lakh crore INR) which is 13% of all public expenditure and 3.6% of GDP. This is scale is inadequate to meet the challenges of educating 1.2 billion Indians. The Kothari Commission set up 40 years ago had recommended an allocation of 6% of GDP for education. In most advanced countries 4-6% of GDP is allocated to education. Even in emerging economies like Brazil and Russia, the share of public spending on education is well above 10%, while as a share of GDP it is similar to India’s. In China the spending on education as a share of GDP appears to be low but this due to the different accounting standards.

Low spending in education by the government has lead to two harmful consequences-one, growing inequity in education as those with better resources get better education while the majority have to do with mediocre or poor educational standards and a decline in quality as regulation and monitoring is patchy.

A regulatory maze which needs to align better to the needs of the Knowledge economy has also been cited by some authors.

The Government of India set up the National Knowledge Commission (NKC) in 2005. The terms of reference are very clear:
• Build excellence in the educational system to meet the Knowledge challenges of the 21st century and increase India’s competitive advantage in fields of Knowledge

• Promote creation of Knowledge in science and technology laboratories

• Improve the management of institutions engaged in Intellectual Property Rights

• Promote Knowledge applications in Agriculture and Industry

• Promote the use of Knowledge capabilities in making government an effective, transparent and accountable service provider to the citizen and promote widespread sharing of Knowledge to maximize public benefit.

In a letter dated November 2006 to the prime minister, the NKC wrote,” we consulted concerned people in parliament, government, civil society and industry. The concerns about the higher education system are widely shared. There was a clear, almost unanimous, view that higher education needs a systematic overhaul, so that we can educate much larger numbers without diluting academic standards. Indeed, this is essential because the transformation of economy and society in the twenty-first century would depend, in significant part, on the spread and the quality of education among our people, particularly in the sphere of higher education.”
The three key recommendations highlighted in the letter are:

A) Expansion
B) Inclusion and
C) Excellence.

A. EXPANSION

1. Create around 1500 universities nationwide which would enable attainment of a gross enrolment ratio of at least 15 per cent by 2015. The focus would be on new universities and clusters of affiliated colleges could also become universities.

2. Change the present regulatory system in higher education. The barriers to entry are high, the process of authorizing entry is cumbersome, and there is a multiplicity of regulatory agencies where mandates are both confusing and overlapping. The system, as a whole, is over-regulated but under-governed.

3. Increase Public Spending and Diversify Sources of Financing. The expansion of our system of higher education is not possible without enhanced levels of both public and private financing. Since government financing will remain the cornerstone, government support for higher
education should increase to at least 1.5 per cent of GDP, out of a total of at least 6 per cent of GDP for education.

4. Establish 50 National Universities that can provide undergraduate and post graduate education of the highest standard as exemplars for the rest of the nation.

National Universities can be established in two ways, by the government, or by a private sponsoring body that sets up a Society, Charitable Trust or Section 25 Company.

Since public finance is an integral constituent of universities worldwide, most of the new universities shall need significant initial financial support from the government. The National Universities propose shall admit students on an all-India basis. They shall adopt the principle of needs-blind admissions.

B. EXCELLENCE

1. Reform existing universities. Universities should have regularly updated and relevant curricula, examinations, which test understanding, continuous internal assessment, a course credit system where degrees are granted on the basis of completing a requisite number of credits from different courses. Universities must become the hub of research once again to capture synergies.
Changes are needed in resource allocation, reward systems and importantly, mindsets.

There must be a conscious effort to attract and retain talented faculty members through better working conditions combined with incentives for performance.

The elements of infrastructure such as libraries, laboratories and connectivity, need to be monitored and upgraded.

2. Restructure undergraduate colleges. There is an urgent need to restructure the system of undergraduate colleges affiliated to universities.

3. Promote enhanced quality. The higher education system must provide for accountability to society and create accountability within. An expansion of higher education which provides students with choices and creates competition between institutions is going to be vital in enhancing accountability. There should be stringent information disclosure norms, evaluation of courses and teachers by students as well as peer evaluation of teachers by teachers should be encouraged.

There must be a focus on upgrading infrastructure, improving the training of teachers and continuous assessment of syllabi and examination systems.
It is particularly important to enhance the ICT infrastructure. Web based services would improve transparency and accountability. A Knowledge network would connect all universities and colleges for online open resources. It may be necessary to rethink the issue of salary differentials within and between universities along with other means of attracting and retaining talented faculty members. Such salary differentials between and within universities could be effective without being large. It is necessary to formulate appropriate policies for the entry of foreign institutions into India and the promotion of Indian institutions abroad, while ensuring a level playing field for foreign and domestic institutions within the country.

C. INCLUSION

1. Ensure access for all deserving students. Education is the fundamental mechanism for social inclusion through the creation of more opportunities. Institutions of higher education should be encouraged to adopt a needs blind admissions policy. This would make it unlawful for educational institutions to take into account any financial factor while deciding whether or not to admit a student. There must be a well-funded and extensive National Scholarship Scheme targeting economically underprivileged students and students from historically socially disadvantaged groups.
2. Affirmative action. A major aim of the higher education system must be to ensure that access to education for economically and historically socially underprivileged students is enhanced in a substantially more effective manner.

Given the demographic reality of a young India, expansion, inclusion and excellence in higher education can drive economic development and social progress.

An objective view of India’s position in the global economy reveals the tremendous strides that India has taken particularly over the last two decades and also the tremendous potential that is yet to be achieved. What is needed is an India-led process to coordinate and integrate reforms, combining those in the economic and institutional regime with the many initiatives that are being undertaken in the more functional areas covered in many Indian strategy reports. A domestic process of consultation and stakeholder awareness rising to get buy-in on the kinds of reforms required to implement the actions that can leverage India’s potential.

The economic and institutional regime in India is one of the most fundamental pillars of the Knowledge economy. The important elements here are:
• Macroeconomic stability
• Competition
• Adequate regulatory policies, legal procedures and systems

Among the strengths of India’s economic and institutional regime are:

• Flourishing entrepreneurship and free enterprise
• Capital markets that operate with a fair amount of efficiency and transparency
• Advanced legal system
• Independent judiciary
• Fairly secure property rights
• Protection of private ownership
• Generally prevailing rule of law
• Fair compliance of Corporate Governance norms
• Critical mass of well-educated workers in engineering and science
• Abundant raw materials
• Macroeconomic stability
• Large domestic market
• Large and relatively low cost skilled workforce
Among the weaknesses of India’s economic and institutional regime are:

- Multiplicity of regulations governing product markets
- Distortions in the market for land
- According to some sources, government ownership of some businesses that have been inhibiting the GDP growth by as much as 4%
- Reluctance of Foreign Direct Investors

To strengthen India’s economic and institutional regime the following needs to be done:

- Speed up trade reform by reducing tariff protection and phasing out remaining FDI restrictions and increasing positive linkages with the rest of the country
- Stimulating growth of manufactured and service exports. In doing so, India would drive down global costs in services, just as China drove down global costs in manufacturing
• Strengthening the Intellectual Property Rights (IPRs) and their enforcement

• Simplified single window procedures for entry and exit of businesses

• Reducing inefficiencies in factor markets by easing restrictions on hiring and firing of workers

• Improving access to credit for small and medium enterprises

• Addressing problems in the use and transfer of land and updating bankruptcy procedures

• Ensuring access to reliable power at reasonable cost by rationalizing power tariffs and improving the financial and operational performance of state electricity boards

• Addressing capacity and quality constraints in transport by improving public sector performance in these sectors as well as developing alternate effective logistics and transport solutions

• Improving governance and efficiency of government and encouraging the use of ICTs to increase government transparency and accountability
Using ICTs for more effective delivery of social services, especially in health and education because this would empower citizen’s to contribute and benefit from faster economic growth.

According to Dahlman and Utz, removal of the barriers mentioned above and fostering a stronger investment climate would allow India’s economy to grow as fast as China’s at 10% a year and create some 75 million new jobs outside agriculture. (Dahlman, Carl, Utz, Anuja, India And The Knowledge Economy, Leveraging Strengths And Opportunities’ World Bank Institute; WBI Developmental Studies/ The International Bank for Reconstruction and Development 2005.)

India is a relatively closed economy, compared with other Asian economies, in which exports account for a much larger GDP (33 percent in China; 38 percent in Republic of Korea, compared with only 15 percent in India according to 2003 estimates).

Although this means that India is somewhat protected from global trends, the negative aspect is that it does not benefit from stronger foreign competitive pressures to improve performance or from the ability to draw on more effective foreign inputs, such as capital goods, components, products or foreign investment, which embody more advanced Knowledge.

As a result, India is losing market share to its major competitors especially China, where reforms have move ahead far more rapidly; therefore to
speed up trade reform and be able to export, Indian firms need to be allowed to import the material and technology they need.

India also needs to boost Foreign Direct Investment (FDI), which can be a facilitator of rapid and efficient transfer and cross-border adoption of new Knowledge and technology. FDI flows to India rose by 24 percent between 2002 and 2003, due to its strong growth and improved economic performance, continued liberalization, its market potential and the growing competitiveness of Indian Information Technology (IT) industries.

Even so, in 2003, India received USD 4.26 billion in FDI, compared with USD 53.5 billion for China. The Foreign Direct Investment Confidence Index by A. T. Kearney (2004) show that China and India dominate the top two positions in the world for the most positive investor outlook and likely first time investments. China and India are the two top destinations for positive investor outlook and likely first time investments and are also the most preferred offshore investment locations for business process outsourcing (BPO) functions and IT services.

Successful economic development is a process of continual economic upgrading in which the business environment in a country evolves to support and encourage increasingly sophisticated ways of competing. A good investment climate provides opportunities and incentives for firms—from microenterprises to multinationals—to invest productively, create jobs, and expand. As a result of investment achievements in the 1980s and
1990s, private investment as a share of GDP nearly doubled in China and India.

India needs to continue to nurture a greatly conducive investment climate that encourages firms to invest by removing unjustified costs, risks and barriers to competition.

One reason for India’s less competitive markets is the excessive regulation of the entry and exit of firms. A time consuming and complex maze of stiff and multiple regulations for obtaining permits deters the entry of firms.

The restrictions on the hiring and firing of employees are also disincentive. Contract enforcement is also a problem, for example it may more than a year to resolve a payment dispute.

2.7 Education and Human Resources

Education is the fundamental enabler of the Knowledge economy as well-educated and skilled people are essential for creating, sharing, disseminating and using Knowledge effectively. The Knowledge economy of the 21st century demands a new set of competencies, which includes not only ICT skills, but also such soft skills as problem solving, analytical skills, group learning, working in team based environment and effective communication.
These skills are important for both workers and managers. Cultivating such skills requires an education system that is flexible; basic education should provide the foundation for learning, secondary and tertiary education should develop core skills that encourage creative and critical thinking. It is imperative to develop a lifelong learning system to provide continuing education and skill upgradation to persons after they have exited formal education.

China’s investment in basic education is instructive; the dividend China reaped is the strong base in manufacturing globally. Investments in basic education are thus fundamental to improvement in productivity and quality of labor. India’s national program for universal elementary education Sarva Shiksha Abhiyan or Education for All was initiated in 2001 and in 2002 the Constitution was amended to make elementary education a fundamental right for every child.

A small and distinguished percentage of the population from premier institutions are making their mark globally in the fields of science, engineering, IT, Research and Development. To create a sustained cadre of Knowledge workers, India will need to develop a relevant educational system focused on real learning over rote learning and development of creativity.

Tertiary education is critical for the architecture of Knowledge economies. India currently produces a solid core of Knowledge workers in tertiary,
scientific and technical education but a large cadre of educated and agile workers can adapt and use knowledge. Major steps need to be taken to ensure that Indian institutions highest quality global standards. Measures are also needed to enhance the quality and relevance of higher education so that the education system is more demand driven, quality conscious, forward looking, able to retain highly qualified people and meet the new and emerging needs of the economy.

According to Utz and Dahlman, in the area of scientific and technical education, even though India produces 200,000 scientists, engineers and technicians a year

It has not been obtaining the full economic benefit from this skill base, because of the mismatch between education and the labor market. The professional workforce that is emerging from India’s higher education system cannot find suitable employment due to 3 factors:

- Growing gap between their Knowledge and real practice
- Limited job opportunities
- Low salaries

Many qualified professionals leave the country in search of better opportunities. The UNDP estimates that India loses $2 billion a year because of the emigration of computer experts to the U.S. Indian students
going abroad for their higher studies costs India a foreign exchange outflow of $10 billion annually.

In large countries like Brazil and India, the capabilities of a substantial proportion of the population need to be enhanced for the economy to show substantial improvements. The success of China for example, in achieving higher growth reveals the importance of a workforce with a basic education that permits them to be trained. With changing technologies and markets, job training is essential to keep the workforce globally competitive and companies must invest in this.

A national model or system of lifelong learning encompassing early childhood to post retirement training with formal (schools, training institutions, universities) and informal (skills learned from family or community) and non-formal learning (structured on the job) should be developed. In the lifelong learning model, people are motivated to learn on a continuing basis and are equipped with skills to engage in self directed learning, given access to opportunities for learning throughout their life and offered financial and cultural incentives to participate in lifelong learning.

The main issues in strengthening India’s education system are:

- Improving efficiency in the use of public resources in the education system
• Making the education system more responsive to market and technology changes.

• Fostering self directed and critical thinking skills among the entire population.

• Enhancing the quality and relevance of primary, secondary and tertiary education.

• Remodeling to deal with teacher absenteeism and vacancies, high dropout rates, inadequate teaching materials and uneven levels of learning achievement (this is especially important if India has to achieve the goal of providing 8 years of schooling for every child by 2010.

• Ensuring consistency between the skills taught in primary and secondary education and the needs of the Knowledge economy; introducing materials and methods to teach students, “how to learn” rather than stressing on occupation-specific Knowledge.

• Reforming the curriculum of tertiary education institutions to include skills and competencies for the Knowledge economy (communication skills, problem solving skills, creativity and teamwork) that also meet the needs of the private sector.
• Raising the quality of all higher education institutions not just a few world-class ones like the IITs or the IIMs.

• Improving the operating environment for education, especially higher education, which calls for a shift in the role of the government from managing the administrative aspects of higher educational institutions to becoming an architect of education standards and regulations, including improving and monitoring the quality of academic programs, establishing accreditation standards and procedures, ensuring equity and coordinating a system with multiple players and multiple pathways to learning.

• Embracing the contribution of the private sector in education and training by relaxing bureaucratic hurdles and putting in place better accreditation systems for private providers of education and training.

• Establishing partnerships between Indian and foreign universities to attract and retain quality staff and provide opportunities for students to receive internationally recognized credentials.

• Ensuring university-industry partnerships to ensure consistency between research and the needs of the economy. This will include curriculum reform to include development of skills and competencies that better meet the needs of the private sector.
• Use of ICTs to double the goal of expanding access to and improving the quality of education.

• Investing in flexible, cost effective job training programs that are able to adapt quickly to new skill demands generated by changing markets and technologies, aligned with the needs of industry.

• Developing a framework for lifelong learning including programs intended to meet the learning needs of all, both within and outside the school system.

This will also require greater coordination across the different governmental bodies responsible for various components of the education and training system and development of procedures for recognition of what is learnt in different parts of the system.

• Making effective use of distance learning technologies to expand access to and the quality of formal education and lifelong training.

2.8 Innovation System

A national innovation system should consist of institutions, rules, procedures that affect how it acquires, creates, disseminates and utilizes its Knowledge.
In a developing country, innovation concerns not just the domestic development of frontier-based Knowledge; it is also the application and use of both new and existing Knowledge in the local context.

The National Innovation Foundation (NIF) was set up by the Department of Science and Technology, Government of India on 28th February 2000 with the main goal of providing institutional support in scouting, spawning, sustaining and scaling up grassroots green innovations and helping their transition to self supporting activities.

The mission of NIF is, “To help India become an inventive and creative society and a global leader in sustainable technologies without social and economic handicaps affecting evolution and diffusion of green grassroots innovations.”

The Department of Science and Technology helped establish the National Innovation Foundation (NIF) of India. The foundation has a Governing Council chaired by Dr. R. A. Mashelkar, Former Director General CSIR. and President Global Research Alliance. Professor Anil K. Gupta, President SRISTI and Professor Indian Institute of Management Ahmedabad, is the Executive Vice Chairperson of NIF.

SRISTI, (Acronym means creation in Hindi), was born in 1993 essentially to support the activities of the Honey Bee Network (to respect, recognize and reward the creativity at grassroots. Based in Ahmedabad, Gujarat, SRISTI
(Society for Research and Initiatives for Sustainable Technologies) is a registered charitable organization that is devoted to empowering the Knowledge rich-economically poor people by adding value in their contemporary creativity as well as traditional Knowledge. It has helped establish GIAN, NIF, MVIF and AASTIIK.

SRISTI was set up to provide organizational support to the HBN. The objectives were: systematically documenting, disseminating and developing grassroots green innovations, providing intellectual property rights protection to grassroots innovators, working on the in situ and ex situ conservation of local biodiversity, and providing venture support to grassroots innovators. SRISTI manages the Honey Bee database of innovations, and supports the publication of the Network’s newsletter in three languages, English, Hindi and Gujarati.

Lately SRISTI has being focusing on more concerted ways of hitherto neglected domains like women’s Knowledge systems, value addition through a natural product laboratory, and innovations in education.

For the last seventeen years the Honeybee Network and Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) have been scouting innovations by farmers, artisans, women, etc. at the grassroots level.

Gujarat Grassroots Innovations Augmentation Network (GIAN) scales up innovations, from the Honey Bee database of innovations, through value
additions in innovations to sustain creativity and ethics of experimentation. GIAN was conceived at the International Conference on Creativity and Innovation at Grassroots (ICCIG), jointly organized by IIM Ahmedabad and SRISTI.

The Honey Bee database of 10,000 innovations, collected and documented by SRISTI, would be part of the National Register of Innovations to be managed and supported by NIF. Honey Bee Network is a group of innovators, farmers, scholars, academicians, policy makers, entrepreneurs and non-governmental organizations (NGOs). This has a presence in more than seventy five countries. Honey Bee signifies a philosophy of discourse, which is authentic, accountable and fair. The Network has been woven around three basic ideals.

The Network believes that a Knowledge system in order to become sustainable has to be both just and fair. Hence, while collecting Knowledge from the Knowledge holder, the Network has made it a norm to acknowledge the Knowledge provider with name and reference, if otherwise not desired by the Knowledge provider. This particular practice has come handy in protecting the IPR of the Knowledge provider.

In the second place, the source of Knowledge i.e. in the case of Honey Bee Network, the traditional Knowledge holders and grassroots innovators must be acknowledged, if otherwise desired so by the Knowledge holders themselves.
Finally, any proceed that accrues from the value addition of local traditional Knowledge and innovation; a fair and reasonable share must go back to the Knowledge holders. These have been the guiding principles of the Network, which are fundamental to the functioning of the network and constitute the major non-negotiable for the Network.

Tapping global Knowledge is another powerful way to facilitate technological change through channels such as FDI, technology transfer, trade and technology licensing.

In India with its relatively small formal sector, a very important part of its innovation system relates to how more modern and more efficient practices can be diffused to the greatest number of users. This applies to both domestic and foreign Knowledge.

India has done a remarkable job in diffusing Knowledge and technology in agriculture. As a result of the ‘green revolution’ India has transformed itself from a net importer to a net exporter of food grains.

India’s ‘white revolution’ in the production of milk, has achieved the twin goals of raising the income of rural poor families, and raising the nutrition status of the population.
India should continue to build on its innovative domestic strengths and undertake efforts to improve the productivity of agriculture, industry and services even further.

This includes strengthening technology diffusion institutions such as those related to agricultural extension, productivity-enhancing organizations and technical information agencies. In India, where large disparity exits between the most and least efficient producers in any sector, considerable economic gains can be harnessed from moving the average domestic practice to the best domestic practice or preferably best global practice.

This would require a host of efforts, including improving the norms for technical norms and standards—such as product quality, work safety and environmental protection to facilitate the proper diffusion of know-how efforts to improve technology dissemination by strengthening competition so that the most efficient firms expand and improve performance, establishing and enforcing appropriate laws, encouraging more trade among Indian states, allowing for economies of scale and scope and facilitating the diffusion of best products through price and quality based competition.

Through FDI, technology licensing, import of capital goods that embody Knowledge, advanced products, components and services imports, India can keep pace with other countries like China and Brazil which have made efficient use of these resources. Even advanced countries like the United
States of America are increasingly acquiring technology from beyond its borders.

To its credit India has taken bold steps to increase its R&D infrastructure, developing technological innovations and altering the mindset of its people towards better creation, acquisition and use of technology. It is endowed with a critical mass of scientists, engineers and technicians in R&D and is home to dynamic hubs of innovation such as Bangalore and Hyderabad. Diversified, public funded R & D and higher learning institutions provide critical human capital.

India is also emerging as a major R&D platform. Over 100 MNCs have already set up R&D centers in India, leading to deepening of technological and innovative capabilities among Indian firms. Several Indian companies such as Ranbaxy and Dr Reddy’s Laboratories have international R&D alliances. Such activities have been useful in inculcating a commercial culture among scientists helping them to apply Knowledge for productive ends. The outsourcing of high end R&D to India is yet another newer trend in the IT, telecom, automotive and pharmaceutical sectors. The development of public-private partnership to harness the potential of traditional Knowledge to meet health and welfare needs and reduce levels of poverty is another welcome step.

Despite these accomplishments, India spends only a small fraction of its GDP on R&D. It gets little in worldwide royalty and fee receipts. Regarding
scientific and technical articles in mainstream journals (per million people),
India matches the performance of China, but the contributions of both
countries are very low compared with those of developed countries. Even
the increasing FDI is rather low by global standards. The majority of R&D
inward FDI in India materialized only after the economy was liberalized;
Even this small FDI has created a new competitive advantage, principally for
IT, automotive domains. Limited availability of venture capital in India is an
area of concern although the availability is slowly increasing.

India’s share of global patenting is small despite the strong R&D. India lags
in turning its research into profitable applications. There is however an
increasing number of patents granted to companies by the Indian Patent
Office. This indicates an increasing awareness of the importance of
Knowledge and the value of protecting it through patents. The number of
Indian patents for drugs and electronics has shown a sharp increase in
recent years. In addition, several Indian firms have registered their names
with the United States Patent and Trademark Office (USPTO). Under the
leadership of Dr Mashelkar, the director General of CSIR, the number of US
patents increased from just 6 in 1990-91 to 196 in 2003-04. This indicates
that the focus of research is shifting to patentable innovations, indicating
better conceptualization of research. The recent amendments to the Indian
Patent Act adopted in a move toward adhering to the intellectual property
norms under Trade-Related Aspects of Intellectual Property Rights (TRIPS)
have boosted confidence among international players.
In India 70% R&D is performed by the central and state governments, an additional 27 percent by enterprises both public and private sector industries and less than 3% by universities and other higher education institutions. In contrast, in most countries in the Organization for Economic Co-operation and Development (OECD), the private sector finances between 50-60% of R&D, because it increasingly has the finance, Knowledge and personnel needed for technological innovation. Firms play an even bigger role in R&D in Ireland, Japan, Korea and Sweden. Universities also undertake research to a much larger extent in developed countries and have strong linkages with the corporate world.

Some of the key issues to be addressed in the domain of innovation are:

- Tapping global Knowledge and providing incentives for international technology transfer through trade, FDI, licensing, personnel movements along with informal means like imitation, reverse engineering and spillovers.

- Attracting FDI, which includes moderating regulations.

- Encouraging members of the diaspora and renowned expatriates to further contributions by appointing them to the management boards of national research universities and so on to facilitate the design of university programs that better suit corporate requirements.
• Motivating scientists, engineers and teachers from India working overseas to enter into alliances with multinational companies and establish firms or laboratories and universities to undertake R&D on contract basis in India.

• Auditing and monitoring S&T efforts and institutional performance to identify what works well and then redeploying resources to programs that have a proven track record of success.

• Using the savings to strengthen university-industry programs by means of matching grants, other initiatives and encouraging academics to spend sabbaticals in relevant industries so that their research meets the needs of the productive sector.

• Allowing national research institutes to collaborate with domestic and foreign firms to forge closer links with industry.

• Encouraging scientists and academicians to work closely with industry and in doing so develop linkages between technology development and application so that incentives such as bonuses and royalty sharing from products generated from the research.

• Adequate compensation and access to infrastructure for scientists and academicians
• Giving flexibility, freedom of operation and financial autonomy to universities and research organizations.

• Increasing numbers and quality of student intake, institutions and teachers.

• Developing management skills and entrepreneurial skills in S&T professionals.

• Encouraging private investment in R&D.

• Strengthening R&D so that they can have a more demand-driven and market-oriented approach with closer collaboration among researchers, partners and customers in developing new products and services that can speedily brought to market.

• Creating a favorable and attractive general environment to stimulate R&D investments such as favorable tax structure and other incentives.

• Establishing S&T parks to encourage industry-university collaboration from both domestic and international firms if these parks are accessible to academic institutions.
• Encourage venture capital as an incentive for commercializing of research.

• Effectively enforcing and implementing IPRs to create confidence among domestic and foreign innovators on protection of their innovations in the country.

• Promoting a national fund to support grass root innovators with the aim of building a national register of innovators, converting innovations into viable business plans and disseminating Knowledge of indigenous innovations, especially for job creation.

• Strengthening the emerging new model of reverse drug design to produce innovations in a more cost effective way based on leveraging traditional Knowledge with modern science and exploiting public private partnership.

2.9 Information Infrastructure

Rapid advances in ICTs are dramatically affecting economic and social activities and the acquisition, creation, dissemination and use of Knowledge. The use of ICTs has reduced transaction costs and lowered barriers of time and space and allowed mass production of customized goods and services. With ICTs becoming all pervasive and its impacts transformational, it has become an essential backbone of the Knowledge economy. The information infrastructure in the country consists of
telecommunication networks, strategic information systems, policy and legal frameworks affecting their deployment, and skilled human resources needed to develop and use it. Tele-India has 391 million (2009 population 1.17 billion) cell phone users. By the end of 2010, India is estimated to have 500 million cell phone users. At the end of 2004 there were all of 47 million cell phone users. 6,00,000 people living in the villages were positively impacted and their lives were changed forever. Subsequent to 2004 the amendments in the Telecom policy has given further impetus to broadband and internet penetration in the country.

Remarkable achievements in the IT sector is another of India’s boasts. According to NASSCOM the Indian IT markets has grown from USD 1.73 billion in 1994-95 to USD 19.9 Billion in 2003-04 and accounts for 3.82% of India’s GDP in 2008-09 and provides employment to over a million people. India’s IT services are also moving up the value chain and India is now taking up new and innovative work such as managing IT related business processes for clients. High end IT consulting is also undertaken by companies such as Wipro, Infosys and TCS. These companies are managing IT networks and reengineering business processes in the United States. Infosys was ranked the 9th most respectable IT company in the world in 2004, behind Hewlett-Packard, IBM, Dell, Microsoft, AP, Cisco, Intel and Oracle. In chip design Intel and Texas Instruments are using India as a R&D hub for microprocessors and multimedia chips.
The success of the IT industry as whole influenced competitiveness in other sectors by building confidence in Indian industry and its capability in the world order. Financial analysis, industrial engineering, analytics and drug research are areas in which India will take considerable strides in the future.

Factors that have contributed to success of the IT industry include:
Highly skilled English speaking workforce
Lower wages than US and European counterparts
Low dependence of IT on physical infrastructure
The Indian Diaspora
The introduction of current account convertibility
Easing of controls and regulations in the early 1990s

As predicted by the World Economic Forum’s (WEF) Global Information Report 2002-03 (2003) India’s IT industry has grown at a compounded rate of 38% to reach USD 77 billion by 2008 contributing to 20% of India’s GDP in the period and 30% of India’s foreign exchange earnings. By 2008 IT/ITES industries would employ in excess of 2 million people and thereby create an additional 2 million jobs. This would require trained high quality professionals inadequate numbers. India needs to maintain its competitive advantage of abundant, quality manpower at competitive wages, additionally the workforce profile must maintain the right mix of technical, business and functional skills in the workforce to meet the needs of individual business segments and customer markets. This requires harmonization of the demands of industry with the supply of trained manpower coming from Indian educational and training institutions.
Ensuring an even penetration of ICTs instead of a focused concentration in urban pockets is highly desirable. An enabling environment would require widespread availability of telephones including mobile phones, computers and internet connectivity to the internet, enhancing ICT literacy skills among the population and developing ICT services that provide much needed social, economic and government services to citizens.

2.10 Future Challenges

Various reports have addressed India’s transition to a Knowledge Economy. Notable among them are:

Table: 2.11i Reports on Knowledge in India

<table>
<thead>
<tr>
<th>Report</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>India as a Knowledge Superpower: Strategies for Transformation (2001a)</td>
<td>Indian Planning Commission (2001)</td>
</tr>
<tr>
<td>Various Letters To The Prime Minister of India and Report to the People</td>
<td>National Knowledge Commission</td>
</tr>
</tbody>
</table>
In the main, all initiatives have largely been developed around the three functional pillars of the Knowledge Economy:

Education
Innovation
ICTs

Maximum benefits from investments in these areas can be realized only if these initiatives are part of a broader reform agenda, because some elements of India’s current economic and institutional regime could pose constraints. For example, India will not reap the full benefits of its investments in increasing education, ramping up ICTs or even doing more R&D, unless its broader institutional and incentive regime stimulates the most effective use of resources in these areas, permits their deployment to the most productive uses and allows entrepreneurial activity to flourish to contribute to India’s overall development. An effective transformation to a Knowledge economy calls for the nation to act in many different policy domains, deepening, complementing or reorienting ongoing reforms to use Knowledge efficiently and sustained development in the long term to achieve inclusive growth.

Creating awareness and a consultative approach among all stakeholders is itself a huge task
2.11 How to Gear Up for the Challenges

- A genuine political desire to create integrated and coordinated national policies and systems to foster objective, result oriented and wealth creating population.

- Make actionable the very worthy recommendations made by the various committees and commissions.

- Increaser the outlay for education at all levels.

- Work towards decreasing the polarities between urban-rural, gender based, rich-poor sections of the population.

- Make lifelong learning a national objective.

- Genuine partnership between industry and academia with a driving desire to make each party responsive, relevant and responsible in the process of creating a workforce of global value so that the demographic dividend is reaped by the nation.

- Due to the reform process India’s growth rate stands in 2009 at 6.7%, China has been growing at 10%. India has to strategize monitored steps in achieving a steady growth.

- Make India a hub for world class IT/ITES/R&D/Manufacturing.
• Establish a progressive IPR and Cyber law regime.

• Multiplying experiments and publicizing concrete initiatives that clearly exemplify the move to a Knowledge-based economy.

• Sustained and integrated implementation of various policy measures will help to reposition India as a significant global economic power, so that it can rightfully take its place in the comity of nations that are harnessing Knowledge and technology for their overall economic development and social well-being.
2.12 Why Knowledge Management for Business Schools? : Current Importance

As previously pointed out companies are becoming increasingly powerful due to the influence they have on the economy, government and society. Business schools ultimately service these companies not only through the talent they produce but also through the Knowledge that they generate.

Literature expresses irony that despite having to do everything with Knowledge, purposive and all pervasive strategic Management of Knowledge seems to be conspicuous by its absence in academic institutions.

In the case of Business Schools there is a double irony. Business schools have all to do with business and industry, from where the Management of Knowledge originated. Industry uses Knowledge Management due to business necessity; therefore it is taught by Business Schools but paradoxically not practiced within the Business School system.

Business Schools may support industry in their Knowledge Management initiatives mostly through training programs by faculty members that is as agents in the diffusion of Knowledge on Knowledge Management.
Another irony is that Innovation is a favorite topic emphasized in Business School teaching and training but not commonly in evidence within the Business School itself as evidenced by the lack of copyrighted material or patents of Business School faculty or students. Similar comments (as pointed out later in this chapter) have been made by Garvin regarding the teaching and contrarily, lack of practice of both Six Sigma and Learning Organizations in business schools.

There is according to some authors a lack of attention paid to the nature of work in business schools (Willmott 1995). Suddaby and Greenwood characterize Business Schools as having three roles in the production and consumption of Management Knowledge:

a) The primary role is as ‘Quality Controllers’ because academic Knowledge follows not leads industry practice and plays a role in evaluating and refining ,management Knowledge/practice a due diligence role.

b) The primary due diligence role described above can lead to production of new Knowledge, through research-lead innovation. So ‘Research-Lead Innovation’ is the second role of business schools.

c) The third role of Business Schools is the diffusion and dissemination of Management Knowledge via ‘Management Education’
Hislop examines the role of Business Schools in the Cycle of Knowledge Production. Hislop emphasizes the external factors impinging on Business Schools that may have implications on Business School roles. He quotes three factors:

a) The colonizing activities of professional service companies namely consultants who are emerging as key competitors with universities in the production of research (Rynes 2001). Consultants are attempting to develop a role in the creation as well as commoditization and dissemination of Knowledge - a traditionally University role (Huff 1999).

b) Gibbons (1994) argue that fundamental changes occurred in the second half of the twentieth century in the processes of Knowledge production tabulated below.

<table>
<thead>
<tr>
<th>MODE I (first half of the twentieth century)</th>
<th>MODE II (second half of the twentieth century)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discipline based</td>
<td>Trans-disciplinary</td>
</tr>
<tr>
<td>University centered</td>
<td>Requires close collaboration with industry or business partners</td>
</tr>
<tr>
<td>Individualistic</td>
<td>Team rather than individual based</td>
</tr>
<tr>
<td>Largely cognitive</td>
<td>Highly problem oriented</td>
</tr>
<tr>
<td>Based on a process of peer review</td>
<td>Produced and validated through use rather than abstract reflection</td>
</tr>
</tbody>
</table>

(Constructed from Hislop, Donald Knowledge Management in Organizations, Oxford University Press 2005, Chapter 15 Conclusion, Page 246)
c) Neo-liberal government policies and the funding of Universities

There is increasing pressure on Business schools to fund themselves or supplement government funding through revenue generating activities.

Another paper which reassesses the role that Business Schools play is that published by Harvard Business Review, How Business Schools Lost Their Way by Warren Bennis and James O’Toole. The authors write that Business Schools are too focused on “scientific “ research and hire professors with limited real-world experience and graduating students are ill equipped to wrangle with complex, unquantifiable issues— in other words the stuff of management.

Business schools are facing intense criticism for failing to impart useful skills, prepare leaders, instill norms of ethical behavior, and even lead graduates to good corporate jobs. These criticisms come not just from students, employers, and the media but also from deans of some of America's most prestigious B schools.

According to these authors, the root cause of today's crisis in management education is that business schools have adopted an inappropriate—and ultimately self-defeating—model of academic excellence. Instead of measuring themselves in terms of the competence of their graduates, or by how well their faculty members understand important drivers of business
performance, they assess themselves almost solely by the rigor of their scientific research.

This scientific model is predicated on the faulty assumption that business is an academic discipline like chemistry or geology when, in fact, business is a profession and business schools are professional schools--or should be.

Business school deans may claim that their schools remain focused on practice, but they nevertheless hire and promote research-oriented professors who haven't spent time working in companies and are more comfortable teaching methodology than messy, multidisciplinary issues--the very stuff of management.

To regain relevancy, business schools must rediscover the practice of business and find a way to balance the dual mission of educating practitioners and creating Knowledge through research.

2.13 Summary
This chapter brings Knowledge Management within the ambit of business schools in India. It sets the backdrop for the thesis by focusing on both business school challenges and Knowledge Management applicability and covers the national importance of this focus. The many committees and reports that have been made in this context have been covered.