EMERGING CONCEPT OF INNOVATION AND TECHNOLOGY MANAGEMENT EDUCATION (ITM) FOR GLOBAL COMPETITIVENESS

BY

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BACKGROUND

- Knowledge Economy- Emerging New Business Order(McCarney, 2005, and Wendy Jenson, 2007).
- Business & Institutions are under global pressures(APCTT, 1997).
- Innovation and Technology Management (ITM) emerged as a key area for Global Competitiveness(WEF, 2007).

RESEARCH METHODOLOGY

- Competitiveness and National Innovation System
- Emerging ITM Framework
- Case Study
- Changing Trend -Mapping Knowledge

COMPETITIVENESS

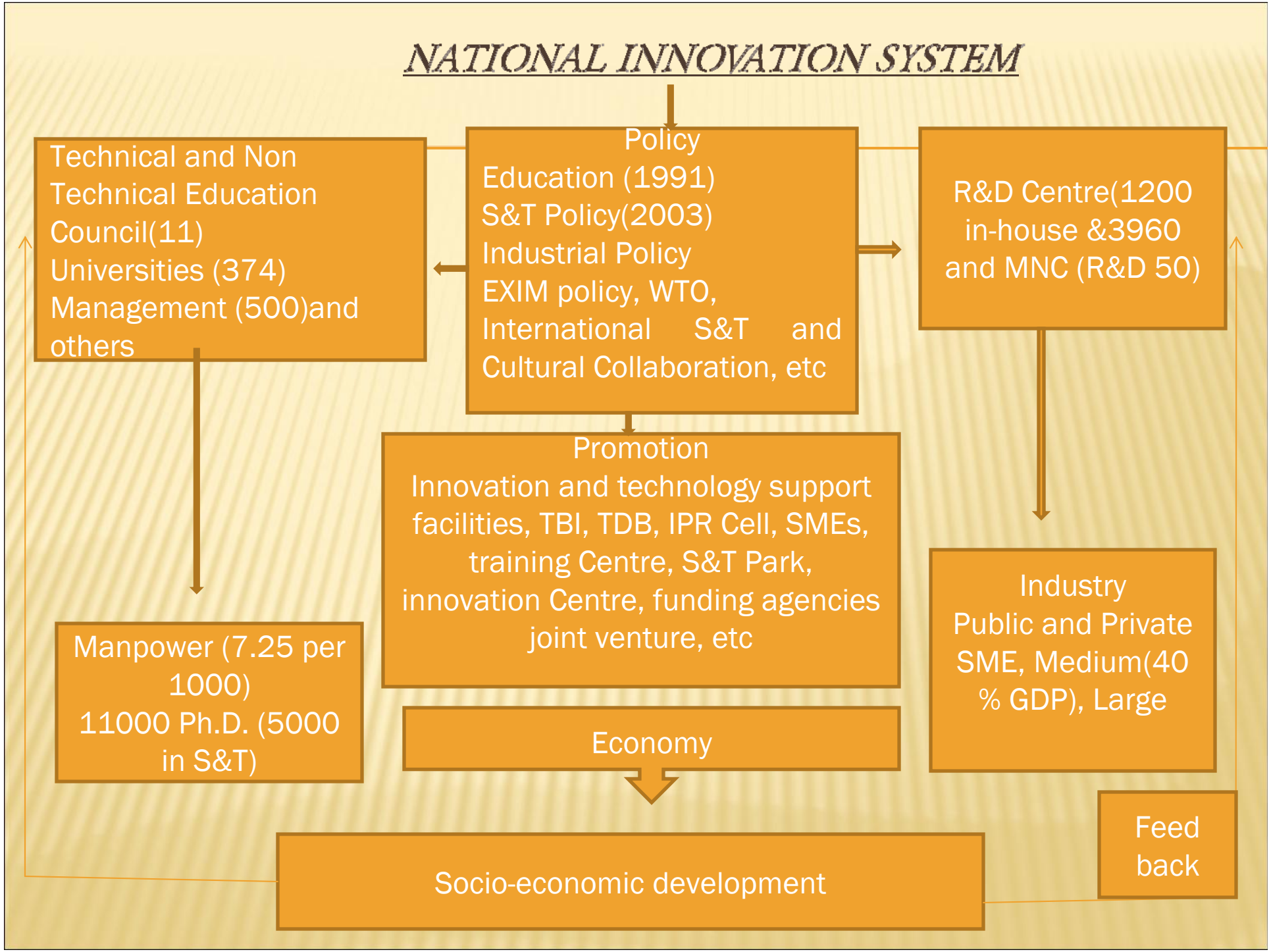
INDICATORS

- Institutions,
- Infrastructure,
- Health and Primary Education,
- Higher Education and Training,
- Technological Readiness,
- Business Sophistication, and Innovation.

Global Competitiveness Ranking among 134 countries, 2008-9

Country	GCI	Innovation	Technological Readiness	Good market efficiency	Innovation sophistication factor	Institutions
Brazil	64	43	56	35	42	98
China	30	29	77	51	32	54
India	50	32	69	47	27	56
S.Africa	45	37	49	31	36	49
Russia	51	48	67	99	73	112

Source: WEF, Global Competitiveness Report, 2008.


NATIONAL INNOVATION SYSTEM
Policy
Education (1991)
S&T Policy(2003)
Industrial Policy
EXIM policy, WTO,
International S&T and
Cultural Collaboration, etc
Technical and Non Technical Education Council(11)
Universities (374)
Management (500)and others
R&D Centre(1200 in-house &3960 and MNC (R&D 50)
Promotion
Innovation and technology support facilities, TBI, TDB, IPR Cell, SMEs, training Centre, S&T Park, innovation Centre, funding agencies joint venture, etc
Manpower (7.25 per 1000)
11000 Ph.D. (5000 in S&T)
Industry
Public and Private
SME, Medium(40 % GDP), Large
Economy
Socio-economic development
Feed back

GLOBAL PERSPECTIVE OF ITM

- NEW BUSINESS TREND-(APCTT, 1997) highlighted the need of ITM in a regular curriculum.
- GLOBAL BUSINESS REQUIRES -Interdisciplinary Approach for ITM - (IAMOT), (ii) (TMEDA). (iii)(PICMET), USA. (iv) (ETMERC),USA. (v) (EITIM). (vi) MOT Consortium in Japan, and Globelics etc
- HUMAN RESOURCE CAPACITY BUILDING

Survey by- Khalil, T. and Garcia-Arreola J. 1997 about 270 academic program- Technological processes are alone not sufficient to combat challenges effectively in the current polarized techno-economic world, rather the ability to manage these skills is equally important.

David W Birchall, and Malcolm S. Armstrong, 2008, study based on 240 businesses in 7 European countries study clarify systematic understanding is essential

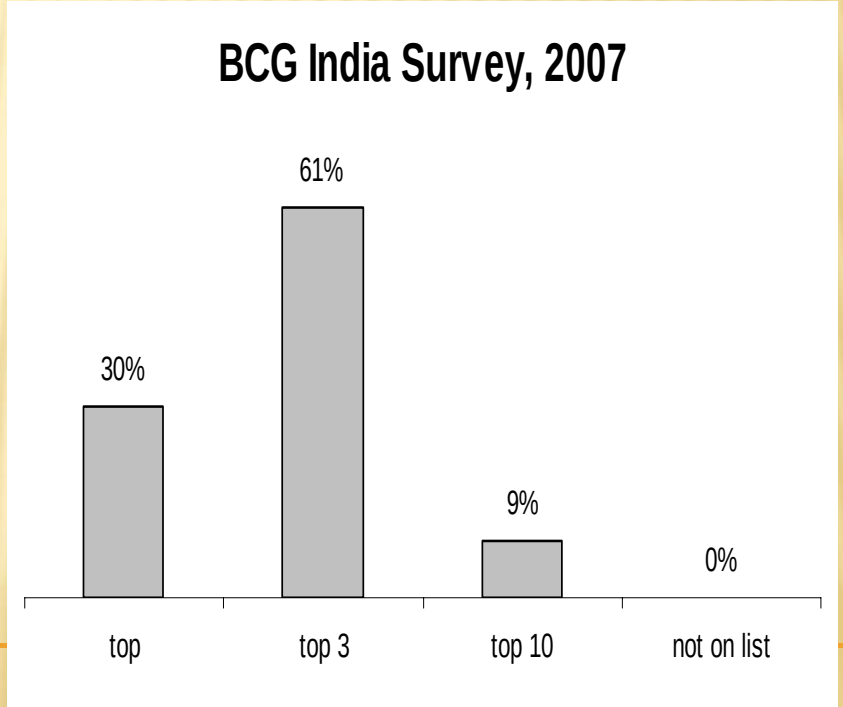
Department of Scientific and Industrial Research(DSIR) promoted ITM through Chair Prof, ship, Course module, training, and research study

INNOVATION APPROACH FOR COMPETITIVENESS

ICT ENABLING SERVICES

INNOVATION RANK AMONG PRIORITIES

2007 SURVEY FOR 120 TOP COMPANIES CEOS



Changing Field of Study Top in Selected Global Business School in Universities Schools

No.	Institute name	Total study field/units/centre or research groups and ()changing courses	Tile of available field of study in related innovation technology management in respective schools/units/centre
1.	Harvard Business school	10(2)	*Entrepreneurial Management, technology and operation management*
2.	London Business School, London	9(3)	Decision Sciences, Entrepreneurship, Operations & Technology Management, *Strategy & International Management*
3.	Said	10(4)	decision Science, operation management, Science technology, and strategic entrepreneurship and international business
4.	Stanford	10(2)	Operations Information and Technology, Strategic Management
5.	Wharton	12(2)	Operations & Information Management, Managing Electronic Commerce,
6.	Kellogg	17(4)	International Business, Real Estate Management, Social , Technology Industry, Management
8.	LUMS	8(3)	Entrepreneurship, *Management Science Work & Technology*, and *Organisation, Technology & Learning*
9.	MIT	18(4)	International Management, Communication, Corporate Strategy &Policy, History- Environment and Ethics, IT, Operations Research/Statistics, System Dynamics, Technology Innovation and Entrepreneurship,
10	Colombia University		Full course program in technology management
11	Manchester Business School		PREST,

Note:- this trend is also seen in science and engineering Schools

Source: constructed from discussion, expert view and various websites

Changing Field of Study in top Selected Asian Universities Business Schools

S.No.	Asian school	Total study field/units/centre or research groups and changing courses	Tile of available field of study in related innovation technology management in respective schools/units/centre
1.	Indian Institute of Management Ahmedabad and Calcutta	12(2)	Personnel and Industrial relations innovation and entrepreneurship
2.	Chinese University of Hong Kong	8(2)	Decision Science, entrepreneurship, cyber
3.	National Singapure University	5(2)	Policy and decision science, management of technology
4.	Asian Institute of Technology, Bankok	Master 6(2)	Entrepreneurship and Management Development, Entrepreneurship Development
5.	Korean Institute of Technology	Full Master and Ph.D	Technology Innovation policy
6.	United Nation University,	5 (Ph.D programme)	Innovation and technological change

Source: constructed from discussion, expert view and various websites

I&TM Education in India

- Emerging importance of ITM and its related discipline are well recognized by several studies (DSIR,2008) .
- The trend has also been seen in industry, Academic and R&D.
- Few Research institutions, companies and business organizations offering short term courses like IPR management, R&D management, product development and market strategies, innovation entrepreneurship, technology forecasting WTO and trade barriers programme.
- These institution are also offering training programmes for their executive in innovation management related areas at firm level.

Industry/ Organization Facilitating Training Programme in IMTT.

Name institute\ organization\companies	**Training programme**	**Name of programme/centre.**
IBM	Short term training/Research	Innovation Management and Technology Management
AMD	R&D and Technology Management	Innovation and R&D centre
TATA Groups (Tata management and consultancy)	Skill up gradation, capacity building in ITM	For market demands
Wipro Mumbai	Short term training programme	Education Innovation entrepureship
BHEL	Training programme	
GAIL	Training programme	Innovation and technology
Patni technologies Groups	SPARK (Systematic Pooling, Analyzing and Researching Knowledge)	For new idea generation. Marrketing
Nokia groups	Advanced State-of Art Facilities	R&D and Technology Management
Ranbaxy	Advanced State-of Art Facilities	R&D innovation, technology innovation Division.
CII, (GITA)	Small and Medium business enterprises training programme, industrial competitiveness	Innovation Management and Technology, Development and promotional programme.
FICCI,	Short term training programme	Technology Entrepreneurship and Promotion

Sources: various institute's industrial association websites and annual reports

Some Specialized Research/Education/Consultancy Centre on Innovation and Technology Management in India.

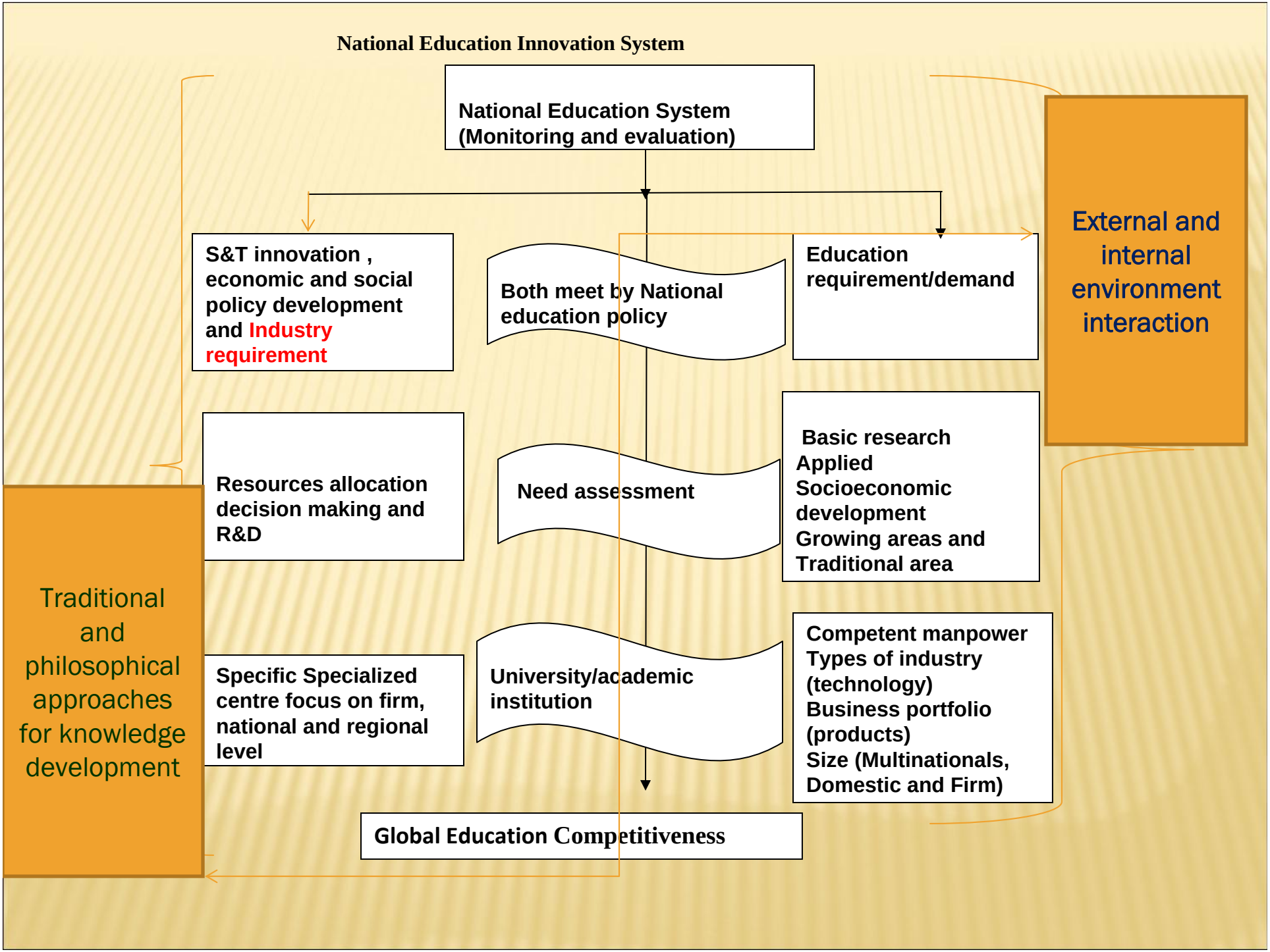
S.N.	Name Institutes/University Organization	Some Specialized Research/ Education/Consultancy Centres in Innovation and Technology Management
1.	Jawaharlal Nehru University, New Delhi	Centre for Studies in Science Policy
2.	IIT Delhi	Foundation for innovation and technology transfer
3	IIT	SIDBI Innovation & Incubation Centre
4	IIM, Ahemadabad	.J. Matthai Centre for Education Innovation Centre for Innovation Incubation and Entrepreneurship
5	DSIR	International Technology Transfer Programme Technology Management Program
6	Administrative Staff College of India	Centre for innovation and technology
7.	PSG Institute of Management Tamil Nadu	Centre for technology management
8	National Innovation Foundation	Innovation traditional knowledge , IPR
9	IISc Bangalore	Society Innovation and Entrepreneurship
10	IIFT	Centre for International Trade in Technology (Innovation management and Technology transfer

Sources constructed from personnel discussion with expert policy makers various institute website and discussion

FILED SURVEY AND FINDING

Asia-link Programme of European Commission at IIFT(2006-2008).

- 126 /firms/RD/academic institutes contacted for market assessment of IMTT education India,
  - 51 academic,
  - 45 companies
  - 30 R&D and policy institutions.
- 27% respondent found to engage in IMTT related research and development activities.
  - Among 27% responded
  - 40 %from R&D organisation
  - 22% industry, 20% policy
  - 60 % academic.
- Needs to be develop and introduce such courses in regular programme in academic institution and also would provide training to industrial organisation.


National Education Innovation System
National Education System (Monitoring and evaluation)
S&T innovation , economic and social policy development and Industry requirement
Both meet by National education policy
Education requirement/demand
External and internal environment interaction
Resources allocation decision making and R&D
Need assessment
Basic research
Applied
Socioeconomic development
Growing areas and Traditional area
Traditional and philosophical approaches for knowledge development
Specific Specialized centre focus on firm, national and regional level
University/academic institution
Competent manpower
Types of industry (technology)
Business portfolio (products)
Size (Multinationals, Domestic and Firm)
Global Education Competitiveness

CONCLUSION

- ITM is new, interdisciplinary academic area that has assumed increasing importance due to the challenge being posed by globalization and rapid technological change and related property regime.
- The close association and interaction with industry, academic consultancy and government
- Fairly strong innovation management systems are evolved or are being evolved.
- The same at regional, sub-regional levels needs to be strengthened. The local resources and needs should be addressed appropriately.
- Technical and management institutions should design and introduce ITM related courses, short term and long term to prepare human resources for the industry agriculture and other sectors.
- Further studies needed.