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Tertiary Education Institutions for Corporate Education Need and Relevance of Corporate education centres

B. PanduRanga Narasimharao, Centre for Corporate Education, Training and
Consultancy, Indira Gandhi National Open University, India

Comments welcome.

Please contact author: narasimhabpr@gmail.com

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Chairs of the Network:

Professor Dr. Güler Aras, Yildiz Technical University, Institute of Social Science, Yildiz Besiktas 34349, Istanbul, TURKEY

guleraras@aol.com

Professor Dr. David Crowther, De Montfort University, Leicester Business School, The Gateway, Leicester LE1 9BH, UK

davideacrowther@aol.com

Abstract

One of the fundamental questions raised due to commoditization of knowledge under the influence of knowledge economy is how to protect the unique role that the universities have played in the overall cumulative system of knowledge generation and diffusion. It is essential that universities cater to the entrepreneurial role as well as the traditional role without limiting their purpose. It is argued that the developing countries like India should plan how this can be done as the entrepreneurial university concept is not yet taken roots in the university system unlike in western countries. It is proposed one of the important and necessary strategies is establishment of corporate education centres in universities and tertiary education systems. The need and relevance of such centres is discussed in detail taking the four pillars of knowledge based economy (KBE) as basis. Some of the initiatives by IGNOU in linking university with industry or coporates are also given. It is argued that for the development of corporate education concept within the framework of traditional universities there is need for national policy and these policies should ensure that the change comes from within the universities for the effectiveness of the concept and its sustainability.

Introduction

Corporate education is increasingly gaining much importance and attention as the world started experiencing transition from production based economy to knowledge based economy with the knowledge workers becoming key factors for the growth and development of organisations and societies¹. It is long since the organisations recognised the necessity for working deliberately to create a culture which promotes and manages organizational learning (Garratt, 1995, Mayo & Lank, 1995). However, with the publication of Daniel Bell's 'The Coming of Post-Industrial Society' in 1973 defining post-industrial society as one where knowledge has displaced property as the central preoccupation, and the prime source of power and social dynamism, the university's role in organisational learning has become crucial as the university produced experts/graduates who can create, guide, and control the new and dramatically changing technologies. Over the last decade, the view that industry and higher education should work more closely together has come to be an all-but-unshakable part of the dominant, conventional wisdom (Wright, 1990). Considering the crucial significance of specialized knowledge and new skill in the production process, universities are being looked at as holding the key to economic revitalization of a society. The tertiary education systems in turn are getting under pressure to meet the demands imposed by a globalised knowledge-society and industrialisation which threatens the institutional integrity of the university and the future of scientific research due to commoditization of knowledge (Nelson, 2004).. Hedges (2009) argues that we are living in an age of moral nihilism and we have turned our universities into vocational factories producing corporate drones. There is no dispute that universities need to become more responsive to the social and economic needs of the emerging knowledge societies and economies. Narasimharao & Nair (2010) while discussing corporate education and universities concluded that the 21st century social responsibility of universities particularly with reference to developing countries is their involvement with society for broader purpose. Another social responsibility question here is how to protect the fundamental and unique role that the universities have played in the overall cumulative system of knowledge generation and diffusion. The present paper examines corporate education centres in traditional universities as one of the strategies to address some of these issues.

Entrepreneurial University and Traditional University

The potential and actual contributions of universities to economic development have long been discussed (DiGregorio and Shane 2003). The need for universities to evolve into entrepreneurial-oriented institutions has also been observed in many Asian countries (Shahid and Nabeshima, 2007). The concept of the ivory tower as a symbol of the university in the nineteenth century

gradually became substituted by the concept of the university as fuzzy, blurry arena with a plurality of actors and interests. This new model of university is described and prescribed under different terms like innovative university (Clark, 1996), entrepreneurial university (Clark, 1998), enterprise university (Marginson and Considine, 2000), post-modern university (Rip, 2004), the responsive university (Tierney, 1998), the service university (Buchbinder, 1993; Tjeldvoll, 1997), the stakeholder university (Jongbloed and Goedegebuure, 2001). In the transition towards a knowledge economy and knowledge society, universities have a greater social responsibility to produce more knowledge, relevant knowledge, and also become responsible for the transfer of that knowledge to those parties who need it. The old paradigm of scientific discovery was characterized by the hegemony of theoretical or experimental science; by an internally driven taxonomy of disciplines; and by the autonomy of scientist and their host institutions, the universities. This paradigm was being superseded by new paradigm of knowledge production that was socially distributed, application-oriented, trans-disciplinary, and subject to multiple accountabilities (Beerens, 2009). Further, the Tertiary education system in general is facing unprecedented challenges arising from the convergent impacts of population explosion, knowledge explosion, revolutionary developments in ICT, science and technology explosion, globalisation and commercialisation, massification of education etc. Both the policy makers and academics all over the world recognized the need for a change.

One of the concerns of educationists is that all these developments lead to the disappearance of University of culture described by Readings. It is stated that there is crisis of purpose in the modern university. The hegemony of the multi-university has come into being not as a result of principled-decision making or any process of rational thought. Rather, it has emerged as a result of powerful forces compelling it to conform "to the ideology of today, a global theory called corporatism", and its main role is the production of human resources appropriate for the market place rather than of a "national culture" (Readings, 1996). This concern about the market driven education is reflected in the UNESCO's draft resolution in 2003 which states that "unregulated growth of higher education markets could weaken the sustainability of national higher education systems, particularly in less developed countries". Anandakrishnan (2008) quoting Association of Universities and colleges of Canada (2001) states that there is substantial body of international opinion among major academic institutions around the world regarding the mission of Higher education.

"Higher Education exists to serve the public interest and is not a 'commodity', a fact which WTO member states have recognized through UNESCO and other international or multilateral bodies, conventions, and declarations. The mission of higher education is to contribute to the sustainable development and improvement of society as a whole by: educating highly qualified graduates able to meet the needs of all sectors of human activity; advancing, creating and disseminating knowledge through research; interpreting, preserving, and promoting cultures in the context of cultural pluralism and diversity; providing opportunities for higher learning throughout life; contributing to the development and improvement of education at all levels; and protecting and enhancing civil society by training young people in the values which form the basis of democratic citizenship and by providing critical detached perspectives in the discussion of strategic choices facing societies." (AUCC, 2001).

It is obvious that the entrepreneurial university concept would not be able to meet all these requirements. It is necessary that the universities take the social responsibility of protecting traditional university². However there is wide range of apprehension about this. For instance, Wrestling (1997) points out that the traditional university has many problems and is beset from within and without. He adds that to preserve it and reform, it will take much hard work and all the good will, imagination and intelligence we can muster. But to ensure that future generations act as responsible citizens we need to cultivate to focus on human development through education. We have the social responsibility of moving from narrow limited purpose to broad multipurpose

education. What Rabindranath Tagore pointed out about commercial man in 1917 is applicable to the higher education system as well.

History has come to a stage when the moral man, the complete man, is more and more giving way, almost without knowing it, to make room for the commercial man, the man of limited purpose. This process, aided by the wonderful progress in science, is assuming gigantic proportion and power, causing the upset of man's moral balance, obscuring his human side under the shadow of soul-less organization.

Rabindranath Tagore, 1917, p.20

It is essential that we save our universities from becoming soul-less organizations by making them complete and broad purpose organizations without limiting their purpose. It is our social responsibility that the utility of universities to their surrounding society at large including the corporate world is planned and executed. Narasimharao (2009a) discussed how university outreach programmes can play an important role for community development as well as for establishing fruitful and effective university-industry linkages. He also argued that any change in the approach and attitude can happen effectively from within the organisation rather from the regulatory authorities or government. As Beteille (1990) states "... academics could have done better to protect those institutions from the forces by which they were threatened." He adds that bureaucratization and politicisation, by which academic life is being squeezed out from two sides, have been encouraged to grow in the universities by academics themselves. A similar argument can be extended with relation to saving the whole university and university of culture while addressing to the needs of corporate and other stakeholders. We need to orient the academics to work for this goal by changing their attitude and approach. What can be done within the existing system need to be planned? This responsibility of proper planning to orient the academics and other stake holders to bring the change from within is more for developing countries like India. India has an advantage at present as the entrepreneurial university concept is yet to take a definite shape. This is the time it can plan for a model where it can protect the traditional role of the universities as well by bringing change from within the universities. In this context, we discuss corporate education and the social responsibility of universities in organisational learning.

Corporate Education

Corporate education concept, though appear to be new it is there in one form or other through out the history of organisations. The relationship between learning and change in organisations is as old as recorded history (Garratt, 1995). However, the role of universities or higher education for organisational learning is recognised much later. In the post Humboldt period the universities assumed two additional roles – that is to conduct basic research and contributing to development and assimilation of technology for civilian and military uses³. The Universities in 19th and 20th centuries focused on the academic aspects in which the academic profession established itself and began to assert a dominant role with less focus on the needs and problems of the industries in their localities. The industries used to believe that there is strong connection between the academic ability and success in the business⁴. The necessity for greater closeness between the universities and industry is driven by five broadly identifiable forces (Wright, 1999).

1. Rapid advance of technological knowledge and the related growth of the sophistication and complexity of the productive process.
2. The movement from elite to mass higher education (massification).
3. The general and somewhat populist tendency to challenge the ascendancy of professions (and their claims to be guardians of the public interest) resulting in pressure on academy to address the needs of its consumers and to consider the process of higher education as an enterprise shared with many others.

4. Just as Humboldt's or Newman's visions of the university were born of the experience of the nineteenth century, the present day universities have to reformulate the conception of education covering the concepts like competence, capability or enterprise that would be in tune with the special circumstances of the age that is now coming into being.
5. The force of internationalism and growing integration of world economy is another factor.

The whole focus is on knowledge and knowledge based economy for the industries and the society. The successful corporate houses started feeling the importance of becoming learning organisations and to retain and develop their work force. This is much evident in the increasing number of big corporates starting what is known as corporate universities. Wagner (2000) reports existence of 2400 corporate universities and it is expected that the number will exceed the 37,000 traditional universities. Some 80 percent of Fortune 500 companies have corporate universities or planning one. Corporate universities are created to offer courses that teach the skills that are necessary for the employees to do their job better and in an efficient way. However, there is concern among many leading educationists about the universal malady of knowledge being broken up into narrower and narrower cubicals and not integrating different disciplines or failure to look beyond the boundaries created by the disciplines (Yashpal, 2009, Cech, 1999, Ruthnaswamy, 1955, Ghose, 2006, Schster, 2008). How to overcome this problem of compartmentalization without compromising on the compulsion of the universities to cater to the needs of the corporate is a social responsibility we may face as the compartmentalization has taken its roots in the universities and all over the world there is a tendency to establish special directed universities for specific field of study. This social responsibility of traditional universities in meeting the needs of knowledge economy is further evident from the fact that more than 50 percent of corporate universities plan to use existing or future partnerships with accredited universities to grant degrees in the fields of business/management, engineering/technical, computer science and finance and accounting (Bedar, 1999). Narasimharao and Nair (2010) discussed various strategies for integrating entrepreneurial university into traditional university under four broad heads – avoiding compartmentalization of knowledge, reaching out to society, need for change in approach and attitude, catering to regional needs. It may be said that the social responsibility of corporate education being treated in the wholesome context of university education lies with all stake holders. It is proposed that this can be done by establishing corporate education centres in tertiary education institutions. These are not technology transfer centres but have much more responsibility of knowledge transfer as per the needs of knowledge based economy. The need and relevance of such centres are discussed in more detail taking into consideration the four pillars of knowledge based economy (KBE) as identified by World Bank.

Universities, Corporate Education and KBE

The World Bank proposed a widely used Knowledge Based Economy (KBE) model that identifies four pillars of KBE :

1. Education, including building a skilled workforce
2. National innovation systems, including science and technology, research and development (R&D)
3. Building networks, including ICT infrastructure and social networks
4. Policy and regulatory environment.

There are many studies on the industry needs and the university and industry interaction. The very basic requirement of industry may be identified as – improvement in capabilities of existing products and processes, development of new products and processes, development of background knowledge likely to be used to make new knowledge intelligible, reduction in the costs or

producing existing products and reduction in the lags behind innovation and adaptation of designs to changes in product markets (Sant, 1994). Dolan (1995) while summarising the findings of their study on 12 UK based organisations observed that any successful organisation must take as wide a view as possible of training and development, looking beyond traditional definitions and beyond the traditional boundaries of the organisation. Traditional linkage mechanisms between university and industry like training centers, consulting units, research units/labs, science parks and business incubators, technology councils etc have their own limitations in the present context. Knowledge is no longer can be considered the domain of one organisation or one institution. For example, it is stated that the sharp distinctions between academic and lay players in knowledge production have weakened because the latter play a key role as brokers (or even creators) of science (Gibbons, 1998). Etzkowitz and others (2007) talks of Triple Helix model with university, industry and government as relatively equal, interdependent and interacting institutional spheres. In addition to fulfilling their traditional functions, each institutional sphere also 'takes the role of the other' with functional integration, as well as differentiation among institutions, taking place through interaction among the spheres. However, we need to see how these spheres are effectively linked and integrated. The four aspects of KBE - education and building skilled workforce, National Innovation Systems (NIS), Building knowledge and social networks and creating environment all are to be dealt within these interactive spheres.

Education and building skilled workforce

Key factors affecting the industry position relative to the knowledge divide are its scientific and technological capabilities, as well as people's ability to access and utilize information. The need for adequate scientific and technical literacy in a nation's workforce is now perceived as a fundamental factor that it can be said that "... scientific literacy, understood as an everyday working knowledge of science, is as necessary as reading and writing (literacy in the commonly understood sense) for a satisfactory way of life in the modern world" (Ayala, 1996). The institutes of higher education have a great social responsibility in creating this ability among people. They can plan both at macro and micro levels. They need to cover domain specific knowledge, new and transferable skills (problem solving, creative thinking etc), managerial and soft skills (interpersonal, communication etc.), social skills etc. In order to meet the challenge of knowledge economy which has seen a proliferation of information and communication technologies, coupled with greater organisational complexity, the growth of virtual and global organisations and rapid change, the traditional human resource management which functioned under narrow operational boundaries need to expand looking both within and outside the organisation. The traditional focus on managing people needs to be broadened to managing organisational capabilities, managing relationships and managing learning and knowledge (Choi, 2000). Further, the unprecedented knowledge explosion in all fields causes more complex situation and the universities and colleges should be able to determine what knowledge and how much knowledge go where. This is not a simple social responsibility considering the observation of Rudolph (1984) regarding uncertainties of the academic job market and the territorial behaviour that goes along with academic department disqualifying the professors from thinking creatively and responsively. This tendency may be countered or in other words used in favour of corporate education by establishing a strong corporate education centre in higher education institutions. The faculty posted here may be forced by the very nature of the department to determine how much and what knowledge have to go for a particular corporate education programme. Narasimharao and Sridhar (2007) discussed how a shift from subject based approach to relevance based approach would help university outreach programmes in catering the needs of industries and the society. Krishna Vedula⁵ of University of Massachusetts Lowell proposes a new approach in which the fundamental courses are integrated with practical projects. On similar lines Steven Girvin of Yale University proposes to radically alter the first year physics curriculum to include what would be useful in their careers (Education times, 8th June 2009 www.educationtimes.com). Similarly, Dahms & Leff (2002) identified the job functions and tasks of a bioscience technical specialist besides listing the general work skills, industry related skills, industry related knowledge and attributes. There is also much

discussion on the generic skills a graduate should have besides the technical and subject knowledge (Johnson et al. 2002). Narasimharao (1992) identified wide array of target groups which need biotechnology education. This may vary from a lay man to highly scientific personnel, floor level worker to industrialists, technicians to highly professionals, teachers to managers, specialists in various subjects to social workers. The hierarchical conventional model of higher education generally focuses on careers giving less importance to students taking jobs elsewhere. We need to train people for different levels of skills and knowledge as per the requirement. All these approaches and observations are important from industry point of view. However, it is unwise to expect academic institutions to churn out 'products' which can fit into the demands of the industry. Such a mechanical matching is unrealistic. It is necessary that we develop 'institutional systems of innovation' in order to overcome the hurdles faced by traditional thinking and practices. These systems should enable us not only to engage ourselves to new areas crucial to today's entrepreneurial university concept but also integrate Readings cultural university concept. Establishment of a separate centre for corporate education and training may help in developing institutional systems of innovation.

One of the major challenges faced by industries and corporate houses in the KBE is convergence of various technologies and knowledge from different disciplines. The basis of the present day management education system itself was as a result of convergence between a number of disciplines – psychology, sociology, cybernetics, economics and ecology – which combined with the more industrial disciplines of finance and production (Garratt, 1995). There are many papers on the corporate needs of the present day and the rise of corporate university concept referred earlier is as a result of these perceived needs. We need to thus develop a corporate education concept which can take care of these perceived needs as result of emergence of knowledge society and convergence of technologies. This cannot be the same as that of the management education system developed around 50 years back to cater to the needs of corporate/organizations of that era. The present day corporate education concept needs to cover more than management education⁶. In this connection it is pertinent to mention the need for convergence of different technologies and knowledge from various disciplines⁷. There has certainly been implicit understanding that developments through existing technologies in any single field are bound to slow down; and plenty of evidence that most social problems cannot be solved through a single technology. For example, most environmental issues on earth cannot be solved without systematic convergence, not only of science with technology but also of social science with an adequate legal framework (Okuwada, 2006). Similarly Stephen Toope, Vice Chancellor of University of British Columbia talk of his own field Law. He states that law doesn't operate in isolation from other fields. It is deeply related to political science, sociology, and anthropology. Since law students cannot be expected to be experts in all these fields, they should be introduced to key ideas from those fields so that their way of analysing is effective, broadened and opened up (www.educationtimes.com, 8th June 2009). What Yashpal committee (2009) on Renovation and Rejuvenation of Higher Education in India argued is very pertinent here:

'We have overlooked that new knowledge and new insights have often originated at the boundaries of disciplines. We have tended to imprison disciplinary studies in opaque walls. This has restricted flights of imagination and limited our creativity.'

'We would like to point out that there are no great universities in the world that do not simultaneously conduct world class programs in science, astronomy, management, languages, comparative literature, philosophy, psychology, information technology, law, political science, economics, agriculture and many other emerging disciplines. Indeed the emerging disciplines do their emerging because of infection or triggering by other fields in the same university Put together, all the disciplines breed value into each other.'

It is necessary that for corporates we develop curricula that combine good science with the complexities of business, intellectual property protection, social sciences and a regulatory environment that is largely political (the real interface between science and liberal arts. Narasimharao (2010) discussed the social responsibility of universities in dealing the issues faced by a multidisciplinary and industrially oriented field like biotechnology. It is important we encourage interdisciplinary and interdepartmental interaction and cooperation. It may be argued that a linker unit/department will be a good strategy. For example many countries developed specialized institutions with coordinative functions often termed as centres of excellence and relevance. They are moving towards a specific spectrum of technologies; they are organizationally integrating research, development and commercialization; and they are increasingly connected with governmental and industrial partners (Beerrens, 2009). Konde (2007) gives an account of University of Zambia's (UNZA) Technology Development and Advisory unit (TDAU) which acts as a linker unit bringing together the expertise available in different UNZA units, industry and government. Thus it is argued here that establishing a centre for corporate education in universities not only help in acting as a coordination unit between industry and university but also help in integrating the activities and studies of various disciplines.

National Innovation Systems

The real magic of a university is the synergistic coexistence of teaching and research in one place. In many western universities, the research produced by faculty is fed directly into the development of the undergraduate and graduate curricula, making the learning experience for students very relevant to developments in the real world. For the knowledge based economy it is necessary that the firms improve their ability to innovate. Successful innovation at the level of the firm required internal and external resources – both tangible and intangible. In this universities play a role through technology transfer. Three stages of evolution in the patterns of university – industry technology transfer in US are identified – 1. linear hand off (traditional path) with technology transfer through students and research papers, 2. spillovers (since 1980's) with real time knowledge sharing between universities and industry, 3. technology market place (growing since 1990s) with technology licensing and start up company creation (Rosenberg and Nelson, 1994). Over the last two decades, the concept of 'National Innovation System' (NIS) has evolved as a framework for analysing the role of innovation in economic development at the national and regional levels (Edquist, 1997; Lundvall, 1992). The successful functioning of the NIS depends on how institutions interact with one another and extend support. Metcalfe (1995) refers to the NIS as 'a system of interconnected institutions to create, store and transfer the knowledge, skills and artefacts which define new technologies'. The social capital of the innovation system influences its significance as how the different component parts interactively perform as a dynamic whole together rather than the excellence of the individual components of the system. This can further be elaborate from figure 1 which gives the framework of the science and technology strategic plan (2004-13) of Thailand enumerating five strategies for improving the Thai economy which may be applicable for other developing countries. It is stated that the typical feature of the innovation system in developing countries is that the major actors in it are often observed to be compartmentalized and isolated from each other (Yokakul and Zawdie, 2009). This is an important observation when we are discussing about the role of universities for corporate education. This is more so for developing countries like India. It is shown that only 10 per cent of bio-pharma start ups in India are set up by academics and the founders of those start ups left academia (Saberwal, 2006). The importance of a centre for corporate education within the university system can be emphasised to develop the cluster concept, community economy at the regional level, supporting regional innovation systems, integrating core technologies with scientific knowledge etc. It can also plan certain unique programmes which will enhance the integrative activities. This may also help the academia to get involved more in corporate initiatives and help universities in fulfilling the social responsibility of broader involvement in the society.

Building Networks

In his classical paper on Economics and Knowledge, Hayek(1936) argued that knowledge needed to make economic policies cannot be aggregated in one person or a small group of individuals, as the knowledge is scattered in the society. One of the problems of underdeveloped and developing countries is knowledge integration though they have ample natural resources and easily available human resources/labour. Creation of knowledge networks including ICT infrastructure and social net works which is one of the four pillars of KBE is a big challenge faced by the developing countries. In this connection we also need to take into consideration the dynamics of knowledge transfer. We can identify two types of knowledge – Tacit knowledge, which is very difficult to codify and the Explicit Knowledge that can be easily codified (Nonaka and Takeuchi, 1995). There are four modes of knowledge transfer identified while dealing with these two types of knowledge. They are socialization, externalization, internalization and combination (Sveiby, 1997). Chaminade and Vang (2008) discusses the influence of social capital and human capital for effecting interactive learning (and thus knowledge integration) with local and external sources of knowledge. The knowledge integration should be a two way process. For example, through outreach programmes the relevant knowledge from Universities may be integrated into a particular section of people in the society and in turn universities should be able to integrate the tacit and practical knowledge of the people into their basic knowledge. In other words, acquire or integrate knowledge and competencies through collaborations and interactions. There are various efforts for building knowledge networks. Porter (1998) developed conceptual cluster models. Based on this the Japanese government mooted the idea of building a Regional Innovation System (RIS) under their Third Science and Technology Basic Plan (2006-10) through 'Industrial Cluster Initiative' and 'Knowledge Cluster Initiative'. The core objective is to promote academia – industry – government links at the regional level and support regional innovation through network mechanisms (Kitagawa, 2009). Centre of excellence and Relevance is another concept which is moving towards a specific spectrum of technologies (such as the NBIC technologies: nanotechnology, biotechnology and biomedicine, advanced computing and information technologies and cognitive neuroscience) and which is organisationally integrating research, development and commercialisation and they are increasingly connected with governmental and industrial partners (Beerens, 2009). Yet another concept which is fast picking up for meeting the societal demands is university outreach programmes. The following excerpt from the speech of Magrath (2006) in a seminar on outreach gives a good idea of outreach programmes and their relevance to present discussion.

"Personally I prefer Engagement, but have little interest in debating labels and terminology. What ultimately counts is the concept of a major state university being in partnership with its community, its state and region, and, yes, the wider world with which we are inextricably involved in this new globalized environment. Ultimately all that counts is what we do in effective working partnerships with businesses, civic organizations, government agencies, and, indeed, other colleges and universities. Everything we do in this future--which is here right now--must involve the fundamental responsibility of educating men and women of all ages and from our diverse populations (we can call this learning); discovering new knowledge and applying it (typically labeled research); and providing service to society."

Narasimharao (2009a) proposed a model for community and economic development through outreach programmes with university outreach centre as a 'linker unit' for integrated development of formal and informal knowledge and creating knowledge capital network. Konde (2007) discussed the role of 'linker units' in triple helix model that mobilize university, government and industry/partner resources to create and incubate businesses. The concepts of collaborations of universities, formation of consortia and creation of clusters are all aimed at how different players of the society can be brought into the fold of knowledge net work and knowledge integration strategies. In the final count what matters is how we overcome the bottlenecks in making use of universities and tertiary education institutions particularly of developing countries where a high

concentration of qualified and skilled individuals in diverse areas of interest are available. Industries or corporate, particularly in developing countries, are unlikely to pool enough skills in any one area of technology that would enable them to apply emerging interdisciplinary fields of technology. Universities in many developing countries are not associated with entrepreneurship and development of technologies and businesses. One of the successful approaches for making use of resources and activities of universities for the benefit of society is establishing a separate centre for corporate education and training which can take care many of the aspects discussed.

Ecosystems

Effective and all-encompassing ecosystems are essential through the entire value chain, from idea to viable enterprise, connecting technology to the market place. Knowledge and technology hubs, R & D labs, government funding, infrastructure, incubators, technology parks are part of the typical ecosystem for technology start-ups. There are diverse source of technology based innovations and in developing countries like India they originate from professionals in technology hubs and hi-tech corporates, IPR holders, technologists in government labs and research institutes, offshoots from academics, including students or faculty or joint ventures, technology business incubators and technology parks (Chatterjee, 2006). Figure 2 presents how a centre for corporate education of University or tertiary higher education institute would help in the ecosystem for knowledge linkage and integration while taking into account the four pillars of Knowledge Based Economy. Universities can take the central players role in creating an ecosystem that facilitates the involvement of academia and other stakeholders with right sorts of social networks and programmes.

Corporate education efforts at Indira Gandhi National Open University

Indira Gandhi National Open University, an apex body of Distance education in India has made several efforts to cater to the needs of the corporate. It started some unique programmes like disaster management, consumer education, intellectual property rights, several agriculture related courses, lab technician course etc. It also established schools of studies/centres covering different new disciplines like vocational education and training, translation studies, performing and visual arts, interdisciplinary and trans-disciplinary studies, tourism and hospitality services sectoral management, journalism and media studies, social work. Many of these departments have collaborations with other organisations to offer some unique and socially relevant courses. In order to coordinate the activities further and developing corporate education concept in relation to Indian higher education system the university has recently in December 2008 established a separate centre for corporate education, training and consultancy. Some of the needs identified by the centre are developing and strengthening the interface between academia, chambers of commerce and other regulatory bodies, developing high value skill training and educational partnership in the field of professional and technical skills by conducting short term courses in new and emerging sectors, planning and updating of IGNOU programmes as per the requirements of the corporate, developing long term partnerships with industries/academic/government and leading established private foundations. The centre already entered into memorandum of understanding or planning one with different organisations covering areas like telecom management, food safety standards, transport management, aviation studies, catering, book publishing, computer education, software engineering, insurance, horticulture etc. IGNOU also started the concept of community colleges which may also help in the corporate education development at local level.

Conclusions

Despite the numerous roles which higher education has played in the life and progress of society, campus is increasingly viewed as a place where students get credentialed and faculty get tenured, while the overall work of the academy does not seem particularly relevant to the nation's most

pressing civic, social, economic and moral problems (Boyer, 1996 in Braskamp and Wergin, 1997). Higher education institutions, Braskamp and Wergin argue, need to reorient themselves as active partners with parents, teachers, principals, community advocates, business leaders, community agencies and general citizenry. This is not going to be easy from the fact that there is grave danger of commoditization of knowledge in the society. It is a social responsibility that we save our universities from becoming soul-less organizations by making them complete and broad purpose organisations without limiting their purpose. The graduates need to get deep discipline content and breadth of academic experience and develop the capacity to negotiate their way successfully in a world where knowledge boundaries are shifting and re-forming to create new frontiers and challenges⁸. Developing countries like India are better placed in this regard as the entrepreneurial university concept or the corporate education concept at universities is yet to take a definite shape which enables it to manoeuvre the developments in a positive way. Universities in developing countries should take social responsibility in evolving suitable mechanisms for making them organisations of social relevance in the 21st century.

The universities of future will have to take the social responsibility of becoming a key factor of economic, social and cultural development of the society and also have to become an important player in improving the quality of life of its citizens. For this to happen the universities need to define new boundaries to scholarship. It is a difficult responsibility as organizations possess unique personalities that are shaped by a distinctive set of norms, values, and goals (Levine, 1980). As Narasimharao & Nair describes for expanding the values, goals and norms the universities in developing countries should be able to evolve new innovation systems which will involve all stakeholders of higher education system; evolve new agenda for higher education to capture the world wide opportunities, and avoid the dangers unleashed by markets and globalization; use 'whole' university by cross fertilization and boundary crossing between different disciplines; combine good science with the complexities of business, intellectual property protection, social sciences and a regulatory environment. As Yashpal committee on *Renovation and Rejuvenation of Higher Education in India* (2009) states "It is important that universities relate to the world outside and the walls of disciplines are porous enough to let other voices be heard. It would also be necessary that the university education is seen in its totality and subject areas not be designed in isolation." Universities in developing countries have the social responsibility of evolving strategies for meeting these different demands of knowledge society. Corporate education concept needs to be viewed from this angle. This concept can strengthen the four pillars of KBE as identified by World Bank. It is argued that establishment of corporate education centres in universities and other tertiary education institutions in a 'linker unit' concept can give a scope for developing corporate education in a new direction to integrate entrepreneurial university into traditional university. Universities need to take it as a social responsibility to develop 'institutional systems of innovation' to overcome the hurdles faced by traditional thinking and practices. These institutional systems should be able take care the issues like compartmentalization of knowledge, multidisciplinary and interdisciplinary trends, need for convergence of technologies, integrating the activities of major actors of national innovation systems, building knowledge net works, developing appropriate ecosystems etc. Some of the initiatives from the universities like IGNOU, university outreach programmes by some Indian universities (Narasimharao, 2009) may prove useful in developing such systems in future in developing countries. However, these initiatives are in their nascent stage and are vulnerable to many factors. Guzzetta (1982) argues that though we in higher education sincerely think that we have been responding to the perceived public needs, we have not met the challenge in reality. He says that we have interpreted all needs in our own image: more courses, credit hours, campus classes and classical curricula. He also adds that we have become so accustomed to thinking of change only in terms of knowledge and other, that it is generally outside of our reality to look to ourselves for the need to change. Balram (2005) gives an account of how the state – funded universities in India appear to be sinking⁹. Narasimharao (2008) quoting the example of University of Mysore where a new concept of University outreach programmes was initiated gives an account of how the new initiatives are treated in a university set up. The whole scenario may change once the vice chancellor who introduced these initiatives

leaves. The National Knowledge commission of India in its report (2007) mentioned 'We recognize that a meaningful reform of the higher education system with a long-term perspective is both complex and difficult. Yet it is imperative.' There are several initiatives in addressing these issues. However, the change should come from within for its effectiveness and sustainability. This cannot be done very easily as the faculty may think their territories are invaded and have to protect in the interest of their own discipline and for the 'good' of the university. The strategy of establishing a centre for corporate education may help in broadening the horizon of scholarship in the higher education institutes and may help in meeting the 21st century responsibility of universities in developing countries for broader involvement of universities with society.

Notes

1. For instance, biotechnology industry clusters around the world identify access to future employees and workforce development as the second or third most important item in a long list of hurdles facing their companies on the road to commercialization (Dahms, 2003).
2. For almost 600 years the universities (as evolved in west) served as little more than training grounds for lawyers, clerics and other professionals. Humboldt changed all that in 1810 by emphasizing the importance of research as complement to teaching and by emphasizing science, by urging transdisciplinary and interdisciplinary approach, and by focusing the university's role for the development of economy and the society (Ruegg, 2004). This is the basis for the traditional university of the present day.
3. see Etzkowitz and others (2000) on the evolution of university autonomy; attitudes towards industry, research in Japan, United State, Europe and Latin America.
4. The establishment of Appointments Boards at Oxford in 1892 and Cambridge in 1901 marked the start of a sustained attempt to locate graduates in post in industry. It was to prove a remarkably successful initiative. By 1913, 20% of Oxford graduates were finding their way into industry (Sanderson, 1972).
5. 'I would like to turn the curriculum upside down and focus on learning rather than teaching. I would start by teaching courses which the physical and social world are explored via hands-on experiences. Specific skills needed to understand and influence the real world will be taught in the curriculum as needed in later years. In this approach, designing for a better world will be taught in the initial years through practical projects. Fundamental courses such as mathematics and physics would be taught as and when they are needed to understand real world applications – Krishna Vedula (www.educationtimes.com 8th June 2009).
6. The management education system which is often used by corporate is resultant of convergence between a number of disciplines – psychology, sociology, cybernetics, economics and ecology – which combined with the more industrial disciplines of finance and production (Garratt, 1995).
7. Okuwada (2006) working on converging technologies mapped the relation among the 153 rapidly developing research areas covering various disciplines like economics, ecology, medicine, biology, business, clinical medicine, psychiatry, agriculture, social sciences, biotechnology, material sciences, geosciences etc. Their study shows that currently growing fields of research have been born in inter-and multi-disciplinary areas. Yet even more integration and collaboration among fields are needed to promote future convergences.
8. For example the University of Melbourne (UoM) implemented curriculum change in 2008 and phased out 96 old undergraduate courses in favour of six new broad first degree programmes. Similarly, the university of Western Australia is set to reduce the number of undergraduate courses from more than 70 to six – arts, commerce, design, health, science and philosophy.
9. The various reasons listed by Balram (2005) are politicization (as evident from the controversies that dog the appointment of Vice-Chancellors), negligible importance given to academic performance of the faculty, professors who do no research and do little teaching, fall in scholarly output, mechanization of education with hard steel moulds of syllabuses and examinations and deadly routine of formal teaching, administration that dominates the outlook of our universities etc. He says we need to urgently reflect on the state of our publicly funded universities as the field of higher education is in the throes of a major transition.

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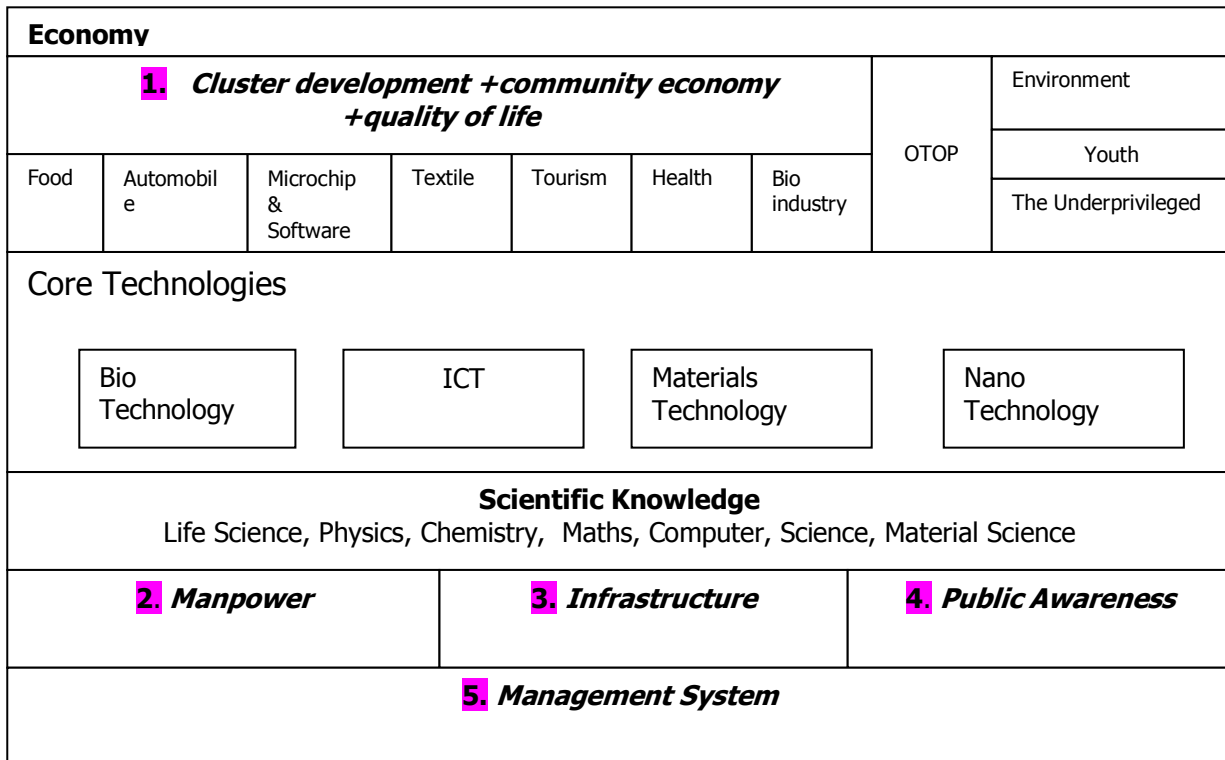
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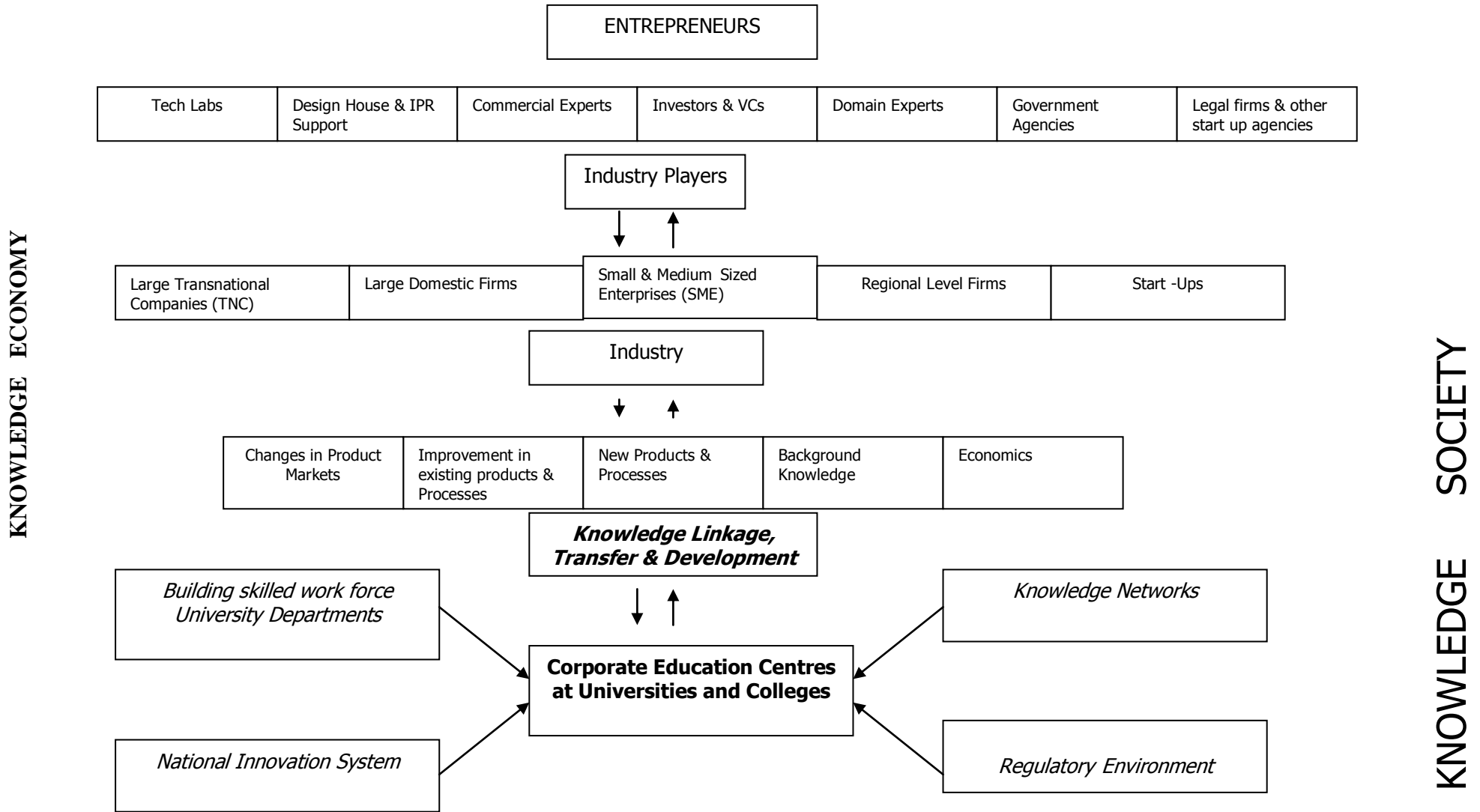
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Figure 1: Framework of the Science and Technology Strategic Plan, 2004-13



Source: NSTDA (2004)

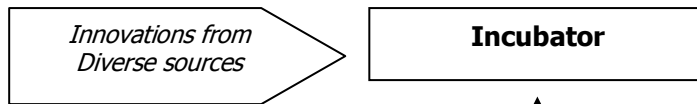
Figure 2: Ecosystem for Knowledge Linkage & Integration - Corporate Education Centres at Universities/Colleges for KRF



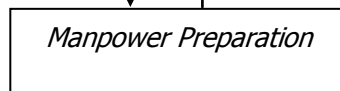
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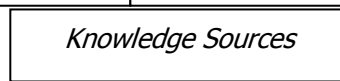
Academic & Technology Institutions	Technology Business Incubators (TBI)	Science & Technology Entrepreneurs Parks (STEP)	Government & Private firms	Centres of Excellence & Relevance
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Domain Specific Knowledge	Transferable skills	Managerial & Interpersonal Skills	Social Skills & Social Capital
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Universities	Research Institutes	Vocational Training	Proactive Corporates
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KNOWLEDGE ECONOMY

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