

# KNOWLEDGE NETWORKING IN CROSS CULTURAL SETTINGS

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Abstract: Knowledge networking is seen here in terms of creating new alliances of producers, users and mediators of knowledge. At the global level, knowledge networking is about a symbiotic relationship between local and global knowledge resources. Cross cultural setting here focuses on promoting a culture of shared communication, values and knowledge, seeking cooperation through valorization of diversity. This focus is informed by the human centered vision of Information Society, which seeks a symbiotic relationship between technology and society.

Key words: communication, enterprise, human centred design, information technology, innovation, knowledge transfer, multimedia, shaping networks

## 1. INTRODUCTION: KNOWLEDGE SOCIETY IN TRANSITION

It is now widely accepted that we are now in a period of a shift from industrial society to post-industrial (information society) and a transition from information society to knowledge society. In this age of the *Knowledge Society*, it is argued that the knowledge economy replaces the production economy and knowledge becomes a new economic resource. The evolving nature of the meaning of knowledge over centuries signifies the place of knowledge as a crucial determinant in the evolution of societal innovations. Each shift in the meaning of knowledge has coincided with a new innovation, be it an industrial, technological, organisational or social one. This is illustrated in the change in the meaning of knowledge from knowledge as *'being' and skill* during the pre-industrial era to knowledge as *technology* during the industrial revolution, to knowledge as *'production resource'* during the Productivity Revolution, and to knowledge as *'organisational resource'* during the Management Revolution. We have come a long way from knowledge as being a 'private good' to knowledge as being a social and economic 'resource', and a traded commodity (Drucker 1993)..

*The shift from industrial society to knowledge society changes the nature of the relationship between society,*

*knowledge and technology. This shift affects in a fundamental way the role of ICTs for the distribution of knowledge, the development of network economies, networks of social innovation and networks of co-development. (Gill, 1996a)*

The notion of co-development here refers to the interdependence between local and global socio-economic systems, and is informed by two human centred notions, subsidiarity and 'valorization' of diversity. The notion of subsidiarity refers to bringing science and scientific knowledge nearer to people. The notion of 'valorization' here refers to common/global knowledge networks which build upon the commonalities of local knowledge bases while sustaining local diversities. These notions are rooted in the idea of the symbiosis between human and the machine; between technology and knowledge, and in this particular case a symbiosis between the 'objective' knowledge and the 'tacit' dimension of knowledge. This symbiosis recognizes the essential contribution of the 'objective' knowledge as a global resource for knowledge transfer and development. However, it emphasises that sustainable development depends upon the local capacity for acquiring new knowledge and the absorbing the transferred knowledge, and this in turn depends on the level of interdependence between the local knowledge and global knowledge (AI & Society; Cooley 1987; Gill, 1996a,b,c).

## 1.1 Local-global nexus

The network model of 'Third Italy' (Emilio Romagna region of Italy) is offered as an exemplar of regional economy based on the decentralised networks of small artisan based companies using new computing technologies. Here the local-global nexus is seen very much as a continuum of the post-Fordist era of decentralisation of production, flexible specialisation, and the emergence of economies of scope, such as the centre-periphery interdependence between dominant companies linked to the small and medium size companies in contractor/subcontractor relationships. Information and communication technologies are seen to map onto the networks of economies, facilitating the exchange, transfer, sharing and dissemination of knowledge, skill and expertise. The logic of flexible specialisation and customer based standardisation is extended by communication technologies to the social and cultural spaces as part of the drive towards globalisation of economies. This logic is illustrated by the power and scope of the global media industries to determine not only the future shape of cultural spaces but also the shape of the local-global nexus of economies.

*On one hand these economies of scale ignore the difference and otherness of local and regional cultures, and on the other hand they give recognition to the diversity and otherness through the production of cultural products.* (Gill, 1996a)

What we are moving towards, it is argued, is a fundamentally delocalised world order articulated around a small number of "concentrated centres for the production of knowledge and storage of information as well as centres for the emission of images and information". (Morley & Robins, quoted in Gill, 1996c). This view of local-global nexus allows for the distribution of local cultures as an integral component of the dynamic global cultural network. There is, however, a concern that the thesis of global assembly line may contribute to the *externalisation of risks* and exploitation of local and regional cultural resources without making purposeful contribution to the local-global cohesion.

*There is a need to explore the notion of culture as another form of information flow and the implication of externalisation of risks for social cohesion. Further what implication it may have for the building of*

*symbiotic relationship between local plurality and global integration.* (Gill, 1996a)

At a certain level, this relationship between the local and global identities is a continuum of the symbiotic relationship of the subjective and the objective, with the subjective remaining rooted in the social domain and the objective embedded in the technological domain. The difference, however, is that while the objective has until now been mediated by human experience, the virtual is only mediated by technology. If virtual reality is about blurring of the subjective and the objective, then it is also about the blurring of the local and global.

*The paradox of information society is that it promotes borderless communication and media technologies in the name of common cultural space, while at the same time defending national and regional boundaries in the name of diversity. "This European paradox is what will shape the reality of information society in Europe".* (Gill, 1996a)

Communication and media infrastructures cannot in themselves be either determinants or mediators of common economic and cultural spaces, they are just one of many social and technological determinants which vary from society to society and culture to culture. The infrastructure may be global but its applications and impacts can only be determined by the local human condition. The local and regional determinants include unemployment, poverty, exclusion and inequality. This is in addition to culture, language, and social and economic factors.

*Replacing human infrastructures of social welfare, health, education, and training by information technology may expand and speed up information flows and create virtual spaces of global cultures, it is unlikely to solve any deep social, economic or political problems.* (Gill, 1996a)

## 1.2 From technology transfer to knowledge transfer

The 'techno-centric' focus of social and economic development is neither 'pre-ordained' nor predetermined. Just as technology can be shaped to serve human purpose, so we can shape social and economic innovations to meet the challenges of employment, health, welfare, inequality and poverty. But this requires a fundamental shift in our view of science and technology, a transcendence from 'causal' science to 'purposive' science (Cooley,

Rosenbrock both in Gill, 1996b). The transcendence here seeks a symbiosis between the 'cause' and 'purpose' in the same sense that human centred vision seeks a symbiosis between the objective knowledge and the tacit knowledge. It also requires a fundamental value change on our part, a shift from the technical to the social, a shift from material wealth to social wealth. The complexity of social, economic and political problems is such that a technological fix is no longer either a realistic or a sustainable proposition

*Whereas the notion of technology transfer has been central to the development of industrial society, knowledge transfer in the wider sense has become a cornerstone of co-development in the post-industrial society.* (Gill, 1996a)

This human centred perspective (Gill 1996b) of knowledge reflects a belief in the much wider diffusion of knowledge in society. Just as technical skills and technical training were regarded as determinants for technology transfer, so are tacit knowledge and competence now regarded as determinants of knowledge transfer. There is however a fundamental difference between technology transfer and knowledge transfer. Technology is technically produced and its transfer is explicit and linear. Knowledge is socially produced, it is both objective and tacit, and its transfer is both explicit and non-linear. Knowledge is generative, productive and reproductive; it cannot be codified and explicated as if it were data. Knowledge transfer has to deal with both the objective and the tacit dimensions of knowledge. The tacit dimension consists of both the experiential and personal knowledge, and its transfer is constrained by the social and cultural contexts in which they are embedded. In many cases the objectified knowledge may not be meaningful without the creation or generation of relevant contexts, and its transfer may again be limited. In general when we talk about knowledge transfer we talk about the transfer of knowledge which is in the public domain, knowledge which is represented and codified in a format which is transferable. We find that even in the case of public knowledge, we depend upon informal and formal human networks to facilitate knowledge transfer; both academia and industry facilitate the transfer through formal lectures, tutorial, seminars, workshop and conferences.

*This challenge of knowledge networking for development is part of a bigger societal challenge as how to integrate technological innovations into the civil society so that technology supports new*

*forms of work life and living environments*  
(Gill, 1996a)

Knowledge networking is thus also about the creation of a local-global nexus of economic and cultural spaces. This human centred perspective emphasises the concept of co-development which is rooted in the notions of participation, sharing, and learning. It is important to recognise that beyond communication and interpretation, knowledge transfer also involves the complexity of transfer between the technological culture and the traditional culture. The integration of tacit knowledge and scientific knowledge faces a number of obstacles such as perceptual and language barriers beyond the need to document it and ensure it is widely disseminated. Tacit knowledge is complex, sophisticated, and certainly not homogeneous or "democratic" in itself. It is rooted in specific societies and reflects and affects conflicts and power of struggle of those societies. It is the result of a particular (sometimes very localised) "worldview", and it feeds and nourishes that worldview, reinforcing local beliefs"

## **1.2 Diversity and coherence**

Diversity from the human-centred perspective is about a deep learning experience while sustaining a deep inner coherence of human values, respect, and dignity of human spirit. Coherence resides in diversity and is about the innovation of the choice of alternatives. Without a unique coherence, we cannot agree upon a coherent measurement of technological innovations, and thus cannot achieve 'valorisation' of diversity. Coherence can be achieved through a balance of communication within networks and harmony through networks of relationships; a local-global cultural nexus. This notion of diversity transcends beyond the traditional choice of alternatives and finds coherence in innovation of choices. This coherence of diversity may provide a conceptual framework for knowledge transfer between and across cultural domains.

Coherence here seeks collaboration between human networks and technological networks. Knowledge networks in their wider societal contexts not only have a role of knowledge transfer, but can also act as actors of 'social critique' in developing the 'social market of ideas, products, and services'. They can act as representatives of plurality, and mediators of the 'valorisation of diversity' at a global level. *Pluralism is a safeguard to societal and individual freedom, but in a world in which we live such pluralism is much compromised and*

*is subject to much distortion* (Whiston, quoted in Gill, 1996c).

Seen from an optimistic perspective of ICTs, the European Community's debate on the Information Society illustrates an emerging shift in technological innovations from its traditional focus on technical solutions to societal perspectives such as diversity, innovation, learning, diffusion, participation, and cohesion. It underlines the forging of unprecedented links between technological innovation process and economic and social organisation, and notes the inadequacy of the linear model of innovation to deal with the complex mechanism of innovation and the interdependent world of technology and the market. It identifies risks of exclusion and dangers of a two-tier society arising from the information society, and emphasises the need to mitigate any adverse consequences of individual isolation, intrusion into private life, and moral and ethical problems (ECE, 1995).

## **2. KNOWLEDGE NETWORKING- A DEVELOPMENTAL PERSPECTIVE**

We see increasing convergence of information and media technologies, leading to new network forms of information and knowledge transfer platforms, while globalisation of production and economies are leading to the creation of a web of information and knowledge networks to support and sustain the globalisation processes and architectures. From a developmental perspective, there is an increasing recognition of the shaping of the convergence of technologies and economies through managing information and knowledge which give value to and reflect the social and cultural context in which knowledge is created and used. As information is becoming a critical resource for development, knowledge networking is becoming a key element in sustainable development which is rooted in the principles of interdependence and mutually beneficial economic growth, supporting participation, cooperation and empowerment. Sustainable development is increasingly being expressed as "the ability of countries to acquire, organise, retrieve, disseminate information through communication, information processing technologies and complex information networks to support policy making and development process." (Nath, April 2000). The issue of socio-economic development is longer just a production of goods and their distribution, but

an issue of managing information and knowledge aiming to fill the gap between the producers and users of goods and services. There is now an increasing realisation among action-oriented researchers and practitioners that "mere economic growth paradigms are unsustainable and there is a need to play a more pro-active role in the development process. The focus is shifting towards "growth with equity, preserving the integrity and the natural resource base of the environment for present and future generations, and generating conditions for everyone to benefit in the overall growth cycle- laying the foundation of the sustainable development process." (ibid.).

Participation and cooperation thus remain at the heart of the development process, making sharing and exchange of information and knowledge as the essential tools for building operational architecture for sustainable development. This view of sustainable development is emphasised, when Nath notes that, "the definition of sustainable development in itself, embodies a belief that people are the foremost, knowledgeable force and should be able to alter and improve their lives in accordance with criteria that take accounts of the needs of others and which protects the planet and future generations. Information exchange is therefore an essential component to sustainable development." (ibid.). He further emphasises that approaching development from an information exchange perspective can improve the quality of people's lives. For example he notes that information about nutritional values of foodgrains can mean better health, even with those with little to spend on food. Public disclosure of information about industrial pollution can lead to a cleaner and more healthful environments. And microcredit programme can make it possible for poor people to invest in a better future for themselves and their children. In a broad sense, information accesses gives people greater control over their destinies.

It is however important to note that while the internet and multimedia tools offer opportunities and possibilities for the storage, retrieval and dissemination of information, the essential prerequisite for this development however remains how we build operational frameworks and mechanism for the transfer, exchange and sharing of knowledge on the basis of equity and diversity. This in turn requires the setting up mechanisms for management of knowledge which is situated in diverse social, cultural, professional and entrepreneurial contexts and forms. It is not just a matter of knowledge retrieval and its transfer but is also a matter of interpretation of

knowledge at various levels and variety of use and application.

### 2.1 A challenge of cooperative networking

A major challenge of cooperative knowledge networking for shaping the processes of social and economic renewal is how to facilitate participation, involvement and collaboration of researchers, entrepreneurs and social actors in generating, servicing, maintaining and regenerating social and cultural knowledge bases for sustainable development. This challenge of cooperative development requires a fundamental shift from a focus of techno-centred vision of information society to the human centred vision, a shift from seeing development in terms of technology shaping of society to envisioning sustainable development in terms of social shaping of technology. This vision emphasises the continuity of technological and social innovations building upon the dynamic interdependence between technology and the knowledge base of society. It sees knowledge as more than a matter of technical innovation, neutral, objectified and separated from the social and cultural contexts. Rather it sees knowledge as the core resource for social and economic innovation, a tool for personal, and social and economic development. This view of innovation shifts the central problematics of information society from technology transfer to knowledge transfer, and from designing technical interfaces to shaping cross cultural communication interfaces between diverse and overlapping knowledge bases and human networks. In this perspective, knowledge networking transcends the established boundaries of information and knowledge flows, seeking to locate and build capacities, inter-linking local and global communities, and thereby transforming “information and knowledge into ingredients of empowerment and equitable development...”.(ibid.)

### 2.2 A Paradoxes of Information Society

One of the paradoxes of the information society is that while knowledge is increasingly being seen as the new social and economic resource, the techno-centric focus of technology lends to homogenisation of knowledge and standardisation of communication. This techno-centric view of innovation tends to eliminate diversity, thereby limiting the potential of new technology as a tool for transfer and sharing of knowledge, and exchange of experiences in an increasingly interdependent world. While there is an increasing belief in the notions of knowledge society, common economic and cultural

spaces, we face dilemmas of exclusion and inclusion, identity and integration, and valorisation and homogenisation.

*Despite rhetoric of inclusion, access and communication, we observe a variety of new mechanisms which promote their opposites, and against which the techno-centric paradigm offers no remedies.(Gill 1996a)*

Various established notions of the human condition, such as those of knowledge and power, work and living, identity and cultural space, products and process, are being increasingly challenged, redefined and refined. The distinction between working, living and learning is being blurred; individual and community identities which until now have been rooted in physical locations and local cultures, are being seen as part of global economic and cultural spaces. This blurring of distinctions and globalisation of identities are some of the issues which provide a catalyst for discussion on cross knowledge networking and sustainable development. Sustainability in this context is defined as the opportunity and ability to participate in cross-cultural settings, promoting a culture of shared communication, values and knowledge, seeking coherence through valorisation of diversity. This focus on valorisation seeks to transcend the limits of the techno-centric paradigm of technical efficiency.

*Technical efficiency has its limits, it leads to brittleness, suffocating creativity and imagination, leaving people with no platform for participation and democratic involvement (Gill 1996a).*

We need a new vision of information society, which seeks sustainable cooperation by promoting a culture of shared communication, values and knowledge, and seeking coherence through valorisation of diversity.

### 2.3 Knowledge and the citizen

Whereas in the past technology had a much longer time scale of innovation than the human life cycle, societies had a much longer period to disseminate, experiment, reflect and absorb technological innovations. As the human life span has increased, the life cycle of technological innovations has shortened to the extent that a serious mismatch has emerged between technological innovation and societies. This *mismatch* between the human and machine cycles puts the citizen and society into difficult dilemmas.

The increasing automation of human mediation forums means that increasing number of people at work no longer feel participants in the organisational processes, and are inclined to exclude themselves from the workplace innovations which are essential for social cohesion both at and outside the workplace. This 'forced' self exclusion further weakens the place of the social in the institutions, and leads to situations in which the relationship of the individual to the institutions is governed by an 'electronic mediating systems' which is predetermined and preordained, and which offer little space or opportunity for participation or adaptation to new innovations and uncertain world.

The traditional intermediary and mediating human agencies ('third' life agencies) which provided forums for participation and inclusion are either being replaced by technological systems or are being forced by the 'economic imperative' to abandon their social mediation role. The radical changes taking place in the scientific and technological landscape require individuals increasingly to be able to grasp the meaning of things without contextual knowledge or human mediation. In this situation, individuals must also learn to think more in terms of self development and to position themselves both as users and as citizens, as individuals and as members of the community in order to cope with social vulnerability arising from the techno-centric vision of the information society.

It is held that one way for individuals and communities to transcend social vulnerability and exclusion arising from the weakening of human mediating forums and agencies is to create new forms of knowledge networking which proactively support overlapping interactions of social and cultural networks. This means using new media and communication technologies for connecting diverse social, economic and technological knowledge bases into a network of common knowledge resource pool for participation and inclusion.

*There is need to create a broad based common knowledge base which enables people to find their way in the information society, to be able to interpret in a critical way the images and information they receive from a variety of sources, and reshape them to suit their diverse needs, aspirations and interests. It is the sharing of a common knowledge base which continuously building upon local knowledge bases which is at the heart of*

*the notion of knowledge networking for cooperative development.*

## **2.4 Knowledge Networking: a human centred perspective**

The debate on knowledge networking and social cohesion has been central to the human centred development in Europe since early 1970s (Gill, 1996b). Human centredness argues that the production and reproduction of knowledge is a social process and is therefore embedded in the social itself. Another notion which human centredness promotes is that of the human as both the producer and user of knowledge. Basically the motivation of human centredness is to provide an alternative model to the machine-centred model of technological innovations, and the purpose is to promote socially useful and culturally responsive technologies. Over the years human centred debates have promoted ideas of user-centred systems, user involved system, and dialogue and participation as central beliefs of shaping work life environments.

In essence, the human centredness transcends the 'causal' view of technology to the 'purposive' view of social and cultural shaping of technology. It holds that the causal view, rooted in the separation of the objective and the tacit dimension of knowledge, leads to designing technology in which people adapt to the machine. The purposive view, rooted in the dynamic interdependence between the tacit and the objective dimensions, leads to designing technology in which the machine adapts to people (Cooley 1987; Gill 1996b; Rosenbrock 1990).

*The human centered view emphasises a vision of cross-cultural networking in which shared communication and shared knowledge drive valorization of diversity and the valorization generates shared communication and shared knowledge. (Gill, 1996a)*

## **3. AN EXEMPLAR IN KNOWLEDGE NETWORKING**

The issues of cooperative networking presented here arise also within a current cooperation network project, EU-India Cross-Cultural Innovation Network. This Network project is concerned with the fostering of proactive collaborations in applied research in socio-economic and entrepreneurial innovations through academic and entrepreneurial networking, including joint inter-university postgraduate and doctoral training programme,

involving universities and entrepreneurs in the EU and India. The project is rooted in our commitment to human centred systems approaches in science and technology and our belief that the establishment of a direct relationship between university and industrial applications is central to the fostering of proactive entrepreneurial and industrial cultures. The central aim of this cross-cultural collaboration is to make a sustainable contribution to the EC-India cooperation on the transfer, exchange of cultural models of innovation and entrepreneurship, especially their transferability between and across regions and cultures both within India and the EU.

Innovation to us refers to new attempts to bridge the gap between the university and the entrepreneurial world. The gap here also refers to the tension between the propositional knowledge of the university and the tacit knowledge of the user, as well as the tension between local and global perceptions of technology. We believe that any sustainable collaboration between the EU and Indian universities involves the upgrading of EU-India capabilities of applied research, knowledge and know-how, and central to this upgrading is the role of academic and entrepreneurial innovations in stimulating social and economic change. This will involve the development of new techniques of problem definition and new modes of joint working and collaboration.

At the heart of this project is the creation of proactive and cross-cultural knowledge network which acts as catalyst and a knowledge resource for promoting and facilitating cross cultural and cross regional cooperation in socio-economic innovations.

We recognise that any sustainable cooperation on cross cultural innovation between the EU and India necessitates a deep understanding of the European traditions of social, economic, industrial innovations and of their Indian counterparts, as well as of the operational mechanisms for the integration of new technology into industrial cultures. By extending the university network to entrepreneurs and entrepreneurial organisations, and by integrating exchanges of researchers with the ongoing processes of joint R & D projects, joint seminars, workshops and network forums, the project provides an integrated model for university collaborations in applied research and postgraduate training. The project aims develop a virtual innovation network consisting of a distributed knowledge data base including a dedicated Web site, email groups, news groups, and electronic newsletters. It will complement academic and entrepreneurial networks and will provide a distance learning and knowledge transfer

resource, thereby contributing to the sustainability of existing collaborations and providing new possibilities of practical cooperation and joint actions between academics, entrepreneurs and other social actors.

### **3.1 Composition of the Network**

The EU-India innovation network, consisting of 9 partners, 5 from the EU and 4 from India, comprises of two inter-meshing networks: a European university network and an Indian university network (see Fig. 1 below). The European partners are Universities of Brighton (UK), University of Wales College Newport, (Wales); IpL (Istituto per Lavoro) Bologna (Italy); Technical University of Denmark, Lyngby (Denmark); and University of Technology, Aachen (Germany). The Indian partners are: National Institute of Science and Technology Development Studies (NISTADS), (Delhi); GLS, Gujerat University, Ahmedabad, (Gujerat); Punjab Agriculture University, Ludhiana (Punjab); and Delhi University (Delhi). The EU partners represent five countries and diverse regions: UK, Denmark, Germany, Wales and Italy. The Indian partners represent three diverse regions: Delhi, Punjab and Gujerat.

### **3.2 Setting up objectives and tools for implementation**

Some of the objectives arising from the setting up of a cooperative cross cultural innovation network between the EU and India University and research institutes are formulated as:

- To create links and bridge gaps between university research and entrepreneurial innovations, leading to two-way sharing and transfer of research.
- To shape information communication networks and information dissemination activities in order to facilitate sharing and transfer of research and knowledge between universities and entrepreneurs.
- To develop new models of applied research based upon joint working practices, particularly through joint R&D projects, research teams, research networks, seminars, workshops, and conferences.
- To build upon and promote existing models and paradigms of innovation which are possible as well as those which are desirable for the sustainable transfer of cross-cultural knowledge and know-how
- To promote the value-addedness of new media in the development of new forms of collaboration and cooperation, and supporting new processes of academic and entrepreneurial networking.

- To design new information technology supported mechanisms and processes which enhance the synergy between global and local innovations, and contribute to the sustainability of existing collaborations by providing new possibilities for university and entrepreneurial networking.
- To promote a common vision and guidelines for applied research and entrepreneurial networking, widening common understanding and practical know-how of industrial cultures.
- To lay the foundations for a "Virtual University" for postgraduate studies in applied research and cross-cultural innovation.

### 3.3 An implementation framework

One of the tools being developed and implemented by the network for building up a sustainable network platform for cooperation is the development of a virtual innovation network.

The innovation network will consist of a distributed knowledge database including a dedicated Web site, electronic mail and news groups, and electronic newsletters. The virtual network will complement academic and entrepreneurial networks, thereby contributing to the sustainability of existing collaborations and providing new possibilities of practical cooperation and joint actions between academics, entrepreneurs and other social actors.

Specifically, the cooperation network will be articulated through activities in following areas:

#### *Entrepreneurial Innovation*

This project area will evaluate the models, processes and mechanisms of entrepreneurial innovation in selected regions in India and the EU, and their impact on regional development both within the EU and Indian contexts. It will identify regional and cultural models of innovation and entrepreneurship and examine their transferability between and across regions and cultures. For example, the project network is concerned with the study of Italian models of entrepreneurial innovation such as the innovation clusters and districts in the Emilio Romagna region; Gujerat family model of entrepreneurial innovation based on their study of innovation models such as AMUL (milk cooperative) as well as the study of Women entrepreneurial models such as the SEWA cooperative model of innovation; Danish models of enterprise and innovation such as the "from field to table" model of agro-industry enterprise; Punjab model of rural enterprise and innovation such as the 'Kisan Mela'- a community based network model of communication, technology transfer and knowledge networking; Aachen model of university and industry networking; Brighton

models of human centred shaping of innovation such as Brighton community networking; Models of entrepreneurship in traditional systems-artisanal, cottage, family, household, such as floriculture: a micro-enterprise model of innovation, and Bankura: from "temple to loom", an integration of new design technology into traditional design (NISTADS)

#### *Socio-economic innovation*

This project area will examine the role of new forms of socio-economic innovation arising out of the integration of new technology in society, identifying the new forms of collaboration between the university and entrepreneurs. One aspect of this activity is to study regional innovation models, and processes of knowledge networking.

#### *Multimedia and value added innovation*

This research activity will identify and examine the role of multimedia in stimulating innovation and cultural industries. It initially focuses on the role of new media in stimulating innovation:

- innovation in cultural industries, new industries
- new industries and new professions
- new communication mediums

#### *Knowledge and Innovation*

This project area will study the models and processes of production, reproduction and dissemination of knowledge and their impact on knowledge transfer between university and enterprises and between the university and wider society. It will draw upon the work of the other three projects and will examine the role of public sector research in fostering innovation, entrepreneurship and economic growth. Some of the issue it focus on are:

- formal and informal knowledge sources
- objective and tacit knowledge
- diffusion and transmission of knowledge
- Historical perspectives –oral tradition, oral/visual tradition, written communication
- Understanding and analysis of based on real life situations
- Models of innovation, their evolution, sustainability
- Models, issue and new directions of research

#### *Sustainability*

The aim is to develop future sustainability through the creation of long-term links between universities, entrepreneurs and social partners, with the development of a 'Virtual Innovation Network'.

#### *Virtual Innovation Network*

This will develop frameworks, models, mechanisms, and a new knowledge database



which will together create new tools for cross cultural networking, applied research and entrepreneurial innovation through the following:

Models of innovation identifying aspects which are transferable (universal) across enterprises and regions, or are regionally and culturally specific

Models of interaction and networking between universities and the entrepreneurial sectors, promoting new direct links with other EU and Indian R & D programmes

Models and mechanisms for the transfer of university research, facilitating the development of future university/enterprise networks through new inputs such as new areas for applied research, new cross disciplinary research links and processes, participatory approaches and research training facilities

### **3.4 Some comments and observation of network partners**

During an international conference and project workshops held in Brighton (September 1999), some of the illustrative comments and observation which reflect the evolving ethos of knowledge networking in the cross cultural contexts are briefly described here:

#### *Networking*

Knowledge networking should be seen as a way of life, sharing knowledge and cultures, building basic trust, democratisation of dialogue, as a process of action, development of coalitions. Networking as an activity is not just about knowledge transfer but also about knowledge gaining.

#### *Models of innovation*

While systems models of innovation may be transferable, cultural models of innovation may not be transferable, e.g. SEWA model of innovation may not be transferable outside Gujarat. Models of innovation may be cultural or systems. To transfer a cultural model to a new context, it should either be included as integral part of the transferred culture or a generate the cultural context of model may need to generated for its effective transfer at the new place.

#### *Some questions on innovation*

How do we weave two patterns together-cooperatives way of working and internet technology?

How to disseminate knowledge and innovation in a cooperative way?

How can clusters of innovation be replicated?

How to innovate for diffusion? How to innovate for coordination?

How to innovate in a cooperative way?

How to create cultural environments for innovation, and how to create relationships of innovation to the values of society?

#### *A challenge*

New economic sectors are becoming tacit knowledge intensive rooted in the informal sector; however, old economic sectors have traditionally been objective knowledge intensive rooted in the formal sector. The challenge is how to synchronise the parallel knowledge networks representing the new and economic sectors?

### **3.5 Some issues- knowledge economy for developing economies**

(communication from Anita Anand, Women Media Centre, Delhi)

Who has knowledge? How is it generated? How is it passed on, preserved and shared?

Who decides what knowledge is essential for economic growth? Is there a process for participation by civil society? If not, how can it be built in?

What are the mechanisms that will enable this? Are their examples of economies where this has been done?

The assumption in developing economies is that the elite generates knowledge and shares it among themselves, that it does not "trickle down" to masses. But the reality is that the masses also have knowledge, which is often not known to elites (such as knowledge of preservation of seeds, foods, soil, textiles, etc).

Can these be acknowledged as knowledge needed for developing economies to move forward. Can a system be created to collect, preserve and share this knowledge, in such a way so that it empowers the people who hold this knowledge?

In developing economies the "marginalised" people -- indigenous, tribals, women --have a wealth of knowledge which is often oral history and sometimes is documented. But researchers often do not consider the implications of communication and sharing of knowledge. Therefore, it is a small community of people that have this knowledge and it stays (and often dies) with them.

In the rather new field of knowledge based economies there is a dichotomy between those that create knowledge and those that use it. But in developing economies this does not have to be the case. For true empowerment, those that develop knowledge should use and share it. This flows from the idea that all people have

knowledge to share. It doesn't divide the world into the "have's and have not's" which is what is popularly projected.

The 1999 UNDP Human Development Report stated that the growth of Internet and information technology is following the pattern of development – the rich North is moving ahead rapidly with information technology and the poor South is left behind. The UNDP researchers calculated the number of users on Internet and based their findings on this.

However, it does not have to be this way. If policy makers in developing countries were to decide that information technology can be harnessed to their advantage and to all people, knowledge generation and sharing would take off in an unbelievable way.

The real struggle in developing economies is between those that follow the capitalist model of development and others that oppose it. The most desirable model is one that lies between the two. For example, even "traditional wisdom" has to be updated for the present age, and this requires some collaboration between modernity and tradition. Traditional knowledge may have been the code for traditional times. But, what is its relevance now, in the 21st century?

#### 4. Conclusions

Knowledge networking here reflects a belief in the need for much wider diffusion of knowledge, expertise and experience in society. The discussion accepts the argument that whereas the notion of technology transfer has been central to the development of industrial society, knowledge transfer in the wider sense has become a cornerstone of innovation in the information society. Knowledge networking is thus not just about increasing the quantity of information, the speed of its transmission and 'user friendly' interaction, it is also rather about the quality, appropriateness and situatedness of information, and the processes of conversion of information into knowledge.

The 'techno-centric' focus of social and economic development is neither 'pre-ordained' nor predetermined. Just as technology can be shaped to serve human purpose, so we can shape social and economic innovations to meet the challenges of employment, health, welfare, inequality and poverty. But this requires a fundamental shift in our view of science and technology, a shift from 'causal' science to 'purposive' science. It also requires a fundamental value change on our part: a shift

from the technical to the social, a shift from technical capital to social capital.

Central to the discussion on knowledge networking are the human centred concepts of sustainability, diversity, interdependence, symbiosis, tacit knowledge, human purpose, dialogue, and coherence. The EU-India Cross-Cultural Innovation Network Project illustrates this fundamental shift from techno-centric paradigm to the human centred paradigm.

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