

INFORMATION SOCIETY, AN EXTENSION OF INTELLECTUAL INDUSTRY

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From the days of its raw conceptualization by Fritz Machlup almost eighty years ago, the concept of information society has woven a web of fantasy and fascination. The humankind's journey into a knowledge society, as the next step of information society, has also presented a new set of global challenges. The technological determinist view of the global village fuelled by information technology revolution is real, but is digitally divided between a minuscule minority of digital haves and a huge mass of digital have-nots. Various described as digital imperialism, digital divide and information rich and information poor, the world is fragmented not only technologically, but otherwise also.

The information revolution of 1960s and 1970s has foisted technology as the new ideology the world over, promising a technological panacea for all the issues before the civilization. However, the economic divide further accentuated the gulf between the Western countries already developed and the developing nations of the Third World. The over-estimation that technology would usher in a welfare technology has resulted in critics puncturing holes in the arguments of protagonists of information and communication technology. Especially, the leftist thinkers feared the loss of jobs, increase in poverty levels and erosion of labour rights and wages. While it is difficult to estimate the job loss, the other areas mentioned have become brittle. The withdrawal of the State from crucial sectors like education, health and public transport has affected the common man very hard. The private sector domination in every field of human activity has resurrected capitalism in its most vigorous form, critics allege. All of a sudden, even in India, the reformist lobby has started emphasizing public-private partnership in core sectors of economic activity.

The most impressive growth has taken place in the telecommunication sector all over the world and India is no exception. The growth rate is

phenomenal in the mobile telephone sector. The rapid expansion of the Internet access has also contributed the high end progress in India. However, compared to China, the quantitative expansion is not-so-significant. Comparatively, the investment in the Indian IT hardware sector is negligible. The initiative, in fact, started only after the launch of economic reforms in 1991. It is estimated that less than one per cent of the GDP is invested in R and D, that too mainly by the government.

The West was the first to move from the stage of agricultural society to the industrial society and then, of course, to the information society and the knowledge society. Initially, it appeared that the developing countries would straight away jump into the league of the developed countries, if they adopted the new technology wholesale. It was expected to re-design the path of development by overcoming the barriers to speedy progress. However, on the ground level, the critical inputs for the development were the same like roads, water and electricity supply, waste management facility and strong financial markets (Frank Jiirgen Richter, Parthasarathy Banerjee, 2009: 17).

The major dimension of national development is the optimum utilization of natural resources and human capital. Conversion of human capital into a knowledge resource is not an easy task. Knowledge is embedded in tools, machinery, human capital or ways of doing things and its transfer requires teaching and training and it is costly (Ibid, 18). At the same time we should not forget that a knowledge society is characterized by comparison, competition and competence (Ibid, p 64). In knowledge economy, the role of intangibles cannot be overlooked. The Knowledge Commission clearly stated that producing new knowledge and protecting existing resources is critical for a nation to compete in the global knowledge economy (NKC, 2009:15). It also recommended the establishment of a digital broadband knowledge

network as a national ICT backbone to enhance access and e-governance in open and distance education and also to enable the dissemination of knowledge across all modes, that is print, audio-visual and Internet based multimedia (Ibid 91).

True, the place of ICT in national development cannot be underestimated. At the same time, exaggerating its importance without proper implementation and its analysis is of no use. ICT can promote development, but it cannot replace development. Its advantage lies in that it can leapfrog certain barriers and stages of development. To some extent the adoption of ICT has made global information society a reality. More than goods and services, it is the collection and diffusion of information that has brought different cultural entities together. It is also true that the world has become more and more inter-dependent in terms of 'international flows of goods and services (trade), direct investment, technology and capital transfers (Houghton and Sheehan, 2000:8). Asset accumulation and management have also become global in character, besides increasing specialization and chains of production with significant national and regional structural adjustments (Ibid). In a global information society, knowledge or information is both clustered and customized. Clustering promotes technology based coalitions and alliances. Information when customized becomes non-rival. In addition, competition is global besides being transnational. No doubt, the very basis of a knowledge economy or an information society for that matter its very survival depends upon the synergy generated between a broad range of specialized industrial, financial, technological, commercial, administrative and cultural skills (Ibid:12). The use of ICT is expected to promote competitiveness in other sectors of production including agriculture and industrial manufacturing.

When the information society index is considered on a global platform, India stands 51 even though it ranks first in the software export business. While States of Karnataka, Tamil Nadu, Andhra Pradesh and the Union Territory of Chandigarh stand out in e-readiness assessment, Mizoram, Jammu and Kashmir, Assam, Meghalaya, Uttaranchal and Jharkhand have fallen below the national average. According to the technology achievement index comprising 72

countries, India occupies an abysmal sixty-third position. The ambitious plan of converting India into a knowledge powerhouse in the next two decades demands a deep commitment and also sincere effort on everyone concerned in every sector.

The education sector occupies the most important place in the creation of a knowledge society. It all starts with good primary education. In order to enroll more and more children, a federal scheme entitled, Sarva Shiksha Abhiyan or Education for All was launched in 2001. This was followed by Right to Education (2010), which is made a fundamental right, after failing to provide compulsory elementary education, as enunciated in the Indian constitution, even after six decades of independence. We must remember that a knowledge society attempts to produce a huge force of knowledge workers. This, in turn, seeks the orientation of the entire education system with focus on learning and creativity. Unfortunately schooling has become important in India rather than learning.

INNOVATIVENESS

A knowledge society aims to inject innovation at all levels of human activity. The Japanese and Koreans have excelled in innovative practices, leading to technology upgradation. It also enables capacity building among the youth. In fact, the focus of capacity building should be on the rural youth, who constitute the prospective workforce. As the domestic capacity swells, access to markets, products and incomes will become a compulsive reality. Once again, innovativeness is directly related to the importing of skills, both internally and externally valid. The National Knowledge Commission the importance of such a step when it said, 'providing access to knowledge is the most fundamental way of increasing the opportunity of individuals and groups' (NKC Report, 2009:13). That is why the eleventh plan had given education a high priority. Setting up of 6000 quality model schools and a skill development mission were envisaged. The total plan allocation for education was to be to the tune of 20 per cent of total plan outlay. The NKC recommended the establishment of 1600 new industrial training institutes and polytechnics, 10,000 new vocational schools and

50,000 new skill development centers, seeking an allocation of Rs.31,200 crores (Ibid:18).

The higher education sector in India is in dire need of a major surgery. With the attraction of medicine, engineering and management courses, science and social science education is relegated to the background. On an objective evaluation the irrelevance of social sciences in the employment market and their non-marketability in a skill-seeking world can easily be understood. Instead of innovative multi-disciplinary courses, the continuation of conventional disciplines has become a mismatch between academics and the job market. Quality management and improvement in higher education are directly linked the accountability factor, which is rather high in a knowledge society. India produces more than 200,000 engineers, technicians and scientists every year. However, this huge army of so-called skilled personnel is not made use of due to the hiatus between acquired knowledge and real practice. Added to this is the brain drain. The cream of brilliant people goes abroad for higher education, not to return to the native country. This actually helps the host country to get trained and ready made skilled personnel without investment. In an information society, mobility across space and time is always promoted to create a 'global village', sparking a discussion on the effects of globalization, cultural imperialism and the need or removal of protectionism in trade and economic practices. To reverse the trend of brain drain and retain the brilliant young men and women within the country, India should consider the establishment of world class R and D institutions and also upgrade the existing institutions as India is recognized as an emerging economy as well as global research and development destination. Besides, public supported universities and other academic institutions should turn to launching commercial ventures as is done in China, for increasing patenting and innovation. No doubt, this requires a very high degree of financial autonomy with enterprising information networks, a tough proposition in the Indian context.

All ICT initiatives in India are basically policy derivatives of the union government and the State governments follow the suit. The number of technical institutions in the country does not reflect either the quality of education or employability,

especially with reference to the information technology sector. The private IT companies will have to train the recruits on their own to suit their requirements. A paradoxical situation of a country which is the largest producer of ICT software has most of its engineering graduates not employable. The wide gap between education and employment is perhaps incompatible with the notion of smart society.

Both at national and global levels, the information society is supposed to usher in an era of high end development, which can be dubbed as smart growth. The obsession with new technology is abominably hysterical as we have perhaps forgotten that new technology can only aid the production and service processes but can replace them. For instance, it can help better crop production and marketing in the agriculture sector but it cannot substitute the production per se. Of course, the greatest advantage of ICT is value creation because knowledge is its principal component. Whether ICT has been able to bridge social inequity and promote empowerment of marginalized and deprived sections of the society is a question worth debating. The recent violence in Great Britain has shown how technology can be used for protests as well uncivilized purposes. The stories of social equity and empowerment enabled by technology are far and few. Unless the success stories are replicated on a large scale, the role of new technology will remain over-rated. What countries like India need is a simple but inexpensive technology. The telephone density increase in recent years with the arrival of mobile telephony is a fine example of how technology can spread wings even in remote years. The same is the story in China also. This phenomenal growth has contributed for information diffusion, but its share in knowledge economy needs to be precisely assessed. Some of the initiatives of state governments are worth mentioning. The Bhoomi e-project of Karnataka is a single window system for all revenue and land records to benefit the farmers and reduce lower level corruption. For its innovativeness the project has won international acclaim. Similar is the story of E-seva kiosks in Andhra Pradesh. The common man is provided all types of services available online at a very nominal fee by the staff of e-seva kiosks. The impact of new technology on

conventional media like newspaper, magazines, radio and television is obvious. Their very face has changed. Mediated communication has become instant and attractive. However, critics allege the deterioration of quality communication and also blame commoditization of mediated communication on technology, which they consider as purely a commercial proposition. If the information society or knowledge economy as we see it becomes a business, then the concept of corporate social responsibility assumes enormous significance. Then the conventional definitions of ethics and morality change and move in a different direction. Mere access to technology does not alter the ground level realities. ICT can usher in a new era of prosperity and equity when it is used for the optimization of all types of production and service benefits in the rural hinterland. The divide between urban and rural India is real in terms of socio-economic opportunities. There is also another divide of urban rich and urban poor, resulting in an obnoxious digital divide across the country. The South of India bristly is emerging as a tech-savvy destination while the rest of the country is struggling to catch up, with a few exceptions here and there.

Several international organizations have already started enunciating strategies for the formation and expansion of information societies by adopting new technologies. The Tunis Agenda for the Information Society under the World Summit on the Information Society adumbrates the role of governments in partnership with other stakeholders in implementing the outcome of the World Summit on the Information Society and the developing countries were asked to focus on sustainable national e-strategies for national development and poverty eradication (2010.1). The agenda harped on ICT strategy in general and sectoral e-strategies for national e-strategies. These included dissolution of telecommunication monopolies and in turn, establishment of an independent regulatory authority. India has divided its telecommunication behemoth into two corporations, Bharath Sanchar Nigam Limited, and Mahanagar Telephone Nigam Limited besides allowing private players to use the 2G and 3G spectra.

Similarly, a good number of Internet Service Providers from the private sector have already

made enormous strides in reach and market share. The number portability of mobile telephones is also launched as part of national e-strategy. Unlike Asia and Latin America, Africa due to historical and other reasons. The Internet penetration in Asia is fast increasing with People's Republic of China in the lead.

CORE SECTORS

The areas of ICT applications suggested by WSIS as per its Action Line 7 are:

1. e-governance
2. e-business
3. e-learning
4. e-health
5. e-employment
6. e-environment
7. e-agriculture, and
8. e-science

When it comes to e-governance, Malaysia has embarked upon a total paperless administration by launching its own information super highways and corridors as a national mission. India has, in a similar initiative, formulated a comprehensive e-governance plan, approved in 2006, with an objective to interconnect 'islands of e-governance initiation in the country at National, State, district even block level'. In the health sector, telemedicine projects are being experimented.

The cutting edge proposition of encompassing all walks of life with technological determinism has its own ethical dimensions. The main ethical concern is to bridge the digital divide which is more pronounced in developing countries like India. Whether it is Internet or mobile phone, the purpose of usage has its own developmental configuration. If not used for social equity or for that matter wealth generation or education, then it becomes another accessory in the pile up of gadgets. Of course, even this position has its own societal value. Town between extremes of vicious poverty and vulgar prosperity, in addition to urban and rural divide, obviously contradictions galore in Indian socialscape. Ethical prescription is that an information society must promote universal values, a difficult practice in a corporate environment. At the same time, universal peace is equally important as the whole world is getting converted into a conflict zone where 'values of freedom, equality,

solidarity, tolerance, shared responsibility and aspect for nature (2010: 14) are respected. The multistake holder approach to information society practiced by Mozambique is often mentioned. The concept also prefers a meta platform for private and public participation jointly to fulfill the tasks enumerated in the national digital agenda.

Action Line C8 of WSIS also speaks of cultural diversity and identity, and also linguistic diversity and local content. No doubt, education, science, innovation, new economy, content and culture are embedded in informatics strategies. Let us not forget that information processing always takes place within a socio-cultural frame. The information society for all practical purposes is the result of merger of mind and technology. Though the new technology is a product of programming with its own language, we cannot forget its refinement and further improvement is also an outcome of collective or team work of intelligent minds, an unflinching effort of intellectual praxis. Technology is assemblage of creative ideations, a civilisational ultimate.

New technology is described as intellectual technology, producing unparalleled masses of knowledge non-stop. The creative aspects of communication, visual or textual or coded, often appear ethereal. In a way, new media can be redesignated intellectual industry as it involves stupendous levels of creativity, originality and spontaneity. However, new technology is unrestricted, borderless and nonetheless effusive. The technology overdrive has its own side effects and perhaps the only solution could be self-discipline. *Mutatis mutandis*, self-regulation is the best policy in any technological environment. Digital ethical dilemmas are complex as information can be unreal possibly rather utopian. Privacy on the net is a delicate issue since hacking can be unethical but also ethical for purposes of national security.

The final destination of informational civilization is directly linked to the development of prosumer (producer-consumer) structure especially in the field of communication. It is interactive, multi-mediated and instantaneous. Unwittingly or otherwise, on one side, we are moving relentlessly towards super-urbanisation and yearning for suburbanization, on the other. Obviously, a new sector of social informatics has

developed with a few of social network sites becoming extremely popular, with both young and old, producing a fertile area for social research.

The arrival of informational society is beset with another important ethical issue of privacy. On the net, nothing called privacy exists. In India, in the absence of stringent privacy laws, invasion of privacy does not entail any significant penalty. Tabloidisation of net is nothing new. Cyber laws have to attain a kind of recognition not seen yet. While legal framework is in existence, the moral and ethical issues are still not completely controlled nor understood by netizens. What was true of television several years ago is true of the Internet, perhaps in graver form, seeking limitless solutions.

Information society has its own detractors. Some of them have termed it utopian while a few others say in the cyber space, no one has an identity and it is difficult to trust the information posted on the net. Lack of authenticity in contents is a serious issue. Television was accused of creating a society of simulation leading to an ectodermic society overloaded with information and communication, mostly multiplied. Information addiction and the consequent alienation and also political aggression can often be seen in the public sphere. Apart from the question of reliability, a loss of sense of reality pervades in the information driven society, critics allege.

INFORMATION CULT

In a world of virtual reality, communication gets impoverished and the language becomes stunted, it is said. The argument that the new media technology promotes creativity does not jell with them and they say the reverse, loss of creativity is true. Data smog is, no doubt, is a barrier. Rozak's *Cult of Information* (1994) is a pointer towards the emergence of an information cult across the planet. One is often left wondering whether this can lead to information cannibalism, converting netizens into invisible cannibals, affecting the very survival of innocent individuals. We have also seen conversion of designated cities in different parts of the world into technopolises, where the IT bellwether companies are headquartered. The loitering of technophiles in the information corridor can be as dangerous as any national conflict. Critics rue the obsession with technology and say that mere access

to information technology may not necessarily usher in a qualitatively better society. A minority of them are also worried about the exponential spread of a synthetic culture replacing the native cultures, evolved over centuries. Alienation and technophobia may also damage the social fabric of a society, even though the affected are a microscopic minority.

Expecting technology to be neutral in a human society is utopian. It depends upon the user as well as the consumer. The new technology is, however, not utopian for the reason virtual reality is also a reality. On its own, the new technology is no doubt revolutionary and has affected our daily routine drastically. For sure, the private sector has contributed immensely for the development of new technology. Yet, we have to reckon that government wherever it is has an important role in monitoring the electronic frontiers, for the new technology has made control of digital space redundant. Now the public owns the digital world and seeks both tangible and intangible benefits from their use. Globalization, a direct offshoot of digital technology, has its own merits and demerits. In the digital world, all are global citizens. However, the global citizenship entails a competent and complete understanding of the technology responsible for it.

We often debate on an ideal world of peace, progress and prosperity. A digitally networked globe can overcome the barriers of space, time and culture. But the digital divide in the developing world is apparent. Rural hinterland is devoid of access to new media, which has in turn deprived them of tangible benefits of information society. The journey to knowledge economy needs quality education and innovation in all the streams, science, technology, social sciences and even languages and humanities. Knowledge as social capital is an intangible asset. Even UNESCO supported the effective use of ICT for promotion of empowerment through knowledge sharing (Veva Leye, 2009: 949). Use of technology for primary level education has assumed priority especially in the context of absence of quality education in rural India. The ISRO launched Edusat for this purpose.

Social media can work only with literates. With still a huge mass of illiterates dotting India, the utility of ICT or for that reason, social media, remains limited in reach while creating awareness. An information society should not limit only to the

computer literate class, but also include oral information or visual information, which cannot be left behind to form another marginal mass. The task is stupendous, but not impossible. May be by another generation the ground will be ready to launch into a total information revolution in countries like India, which have enormous human resources.

The belated entry of IT revolution in India in 1970s can be one plausible reason for the digital divide in the country, separating the rural Bharath from metro India. As a corollary, the Organisation for Economic Co-operation and Development explains digital divide as 'the gap between individuals, households, business and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies and to their use of the Internet for a wide variety of activities' (OECD, 2001:15). The communication revolution in the country came about in 1990s. However, when it comes to communication infrastructure, India has a long way to go, specifically in the sector of Internet penetration and use. Mobile telephony and satellite television channels, on the other hand, have shown exceptional progress.

States with huge populations like Uttar Pradesh, Madhya Pradesh, Rajasthan and Bihar in addition to the North-East have to meet the criteria of an information society yet. Digital divide in these states is more pronounced than others. The divide can also be bridged by making available alternative sources of information like the mobile phones or community television sets. If the mobile telephone tariffs come down drastically, an information boom can be expected in India. The 3G service being made available by both public and private sector players is likely to provide a sector wise boost in information traffic.

Since the information society concept has to take firm roots, the developmental parameters of the digital society have to be evolved, in terms of socio-economic and cultural benefits that accrue. The divide is closed in through online delivery services, information and transfer of governmental activities. As the decline in the cost of communication products becomes evident, the gap between the urban and the rural sectors also closes in. Two other important sociological areas of the

digital divide are age and gender. The elderly sections of the society are either unskilled or resistant to receptively of new technology as they feel it is complex, not user friendly. Similarly the female computer literacy is at low ebb, but is slowly gaining momentum. However, the rural women should become technology savvy not merely in using mobile phones, beyond that. The digital inequity is thus reflected in gender inequity in the use of digital technology. The autonomy of use is another area pointed out by experts as crucial for reducing the digital hiatus.

DIGITAL CULTURE

Access to digital world can be through several routes like physical, social, financial, gratifiatory or cultural besides cognitive. The last two are important because cognitive access helps build up knowledge economy. The cultural effects of new technology are frowned upon by a section of media critics, which desists the very idea of a hybridized culture emerging, leading to a mono global life style at the expense of indigenous cultures. Should not we adopt a communication approach to the spread of new technology? The recent efforts in States like Uttarkhand for the ruralisation of ICT is a welcome step. On the practical side, the quality of technology is deciding factor to measure the quality of an information society. It is also directly related to the quality of skill development in a society. Eventually the knowledge based economy is technologically progressive, where a prosumer culture is expected to flourish. Along with access to technology, the unequal access to content production should be addressed because a new breed of information oligarchs is threatening to monopolies the digital universe, as most players show initial enthusiasm, but vanish in due course of time.

The present usage of new technology is mainly concerned with news and opinion. The real knowledge diffusion has to take place yet. The borderless communication should create an egalitarian society based on equity, autonomy and mutual respect. More and more information load will lead only to a glut of information without any tangible benefit. Eradication of information poverty demands multi-lateral and multi-pronged approach. This in turn, needs new digital coalitions

and platforms to increase access to and volume of meaningful information and knowledge with a society-friendly technology connect.

As information assumes significance, politics of information becomes more mediated, customized and also manipulated. It may often lead to ticklish ethical issues of accuracy, property, accessibility and privacy (Rich and O. Masa, 1986). Especially, the issue of intellectual property has become an issue for global debate. Its legal dimensions are the basis of many a cyber law, like the issue of privacy. Information security has reached paranoid proportions as we have both ethical and unethical hacking practices. An information society has to opt for efficient and effective cyber legal framework, considering trans-border violations.

Social information has its own language, syntax and aesthetic value. Each society has to accommodate them in its cultural fit to avoid extreme conflicts. Either a society of simulation or informational entropy is not a desirable development. The success of any information society depends upon the quality of knowledge it can generate and also the ability of a social system to internalize and routinise it. What is needed is a collective vision for assimilation and adoption of information determination. This calls for a futuristic preparation involving children and young people in the society who immediately grab technological finesse and become adept in its usage. Considering this, Finland has adopted approach of educating children and young people as informed consumers. The approach clearly states:

‘Today’s children and young people are the information society’s new generationfor this they need media education, i.e. guidance in perceiving the information environment and responding to the endless flow of information, means to protect themselves from harmful, illegal and unwanted content, the preparedness to report disquieting or frightening content and actions, as well as to take advantage of the channels of influence and information sharing offered by technology. The objective is to promote the development of media literacy in children and young people so that they have the ability and skills to process media contents critically and from various perspectives’ (WSIS report, 2010:14).

Ipsa facto, an information society prescribes multiple literacies to its members, from textual to visual, from objective to Meta language. Media literacy is one such area making multi-action communication preferentially possible. India is seen as a future powerhouse of knowledge. The ICT, on its turn, should help develop skills, innovativeness and quality education that can eliminate poverty, social and gender inequity and psychological inhibitions. Media literacy is one such effort to keep channels of information, education and entertainment under constant scrutiny to achieve the goal of national happiness and satisfaction.

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