Course: Science, Technology and Society

Professor: Sambit Mallick

Department: Humanities and Social Sciences

Institute: IIT Guwahati

Week: 11 (Information Society)

Lecture: 32 (Themes and Factors of Information Technology)

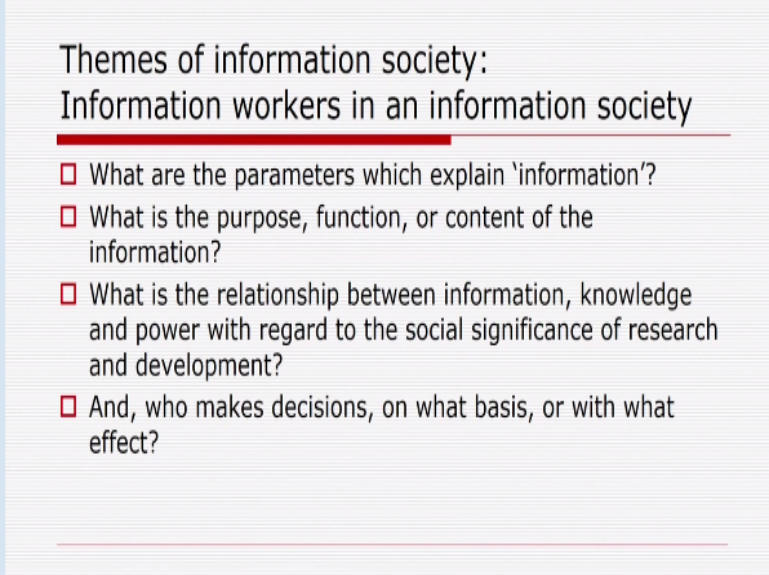
Now, let us come to the major themes of the information society. There are three major themes - one is information workers in an information society or information workers in an information economy, political and global aspects and an information culture. Now, let us see information workers in an information economy.

It is clear, from job advertisements at least since the 1980s, once chances of obtaining employment are enhanced by the possession of qualifications in microelectronics, computing, systems analysis, telecommunications, operational research, software design, fiber optics, expert systems and so on. But what does this proliferation of the new job mean? What does it mean? Who are these information operatives? I am using Tom Stonier's term here, “information operatives.” , what contributions do their activities make to the pattern of such social relationships? First one is very important, what does this proliferation of new job description mean? Secondly, what are these information operatives for terms, I am using the term coined by, I mean information operatives coined by Tom Stonier.

What contributions do their activities make to the pattern of social relations? Central much information society discourse is the contention that information workers are rising to a majority within the labor forces of the advanced societies. But just who are these? it is interesting to see that who are these information workers? If we say information workers in an information economy or information society, then, then who are these information workers? Unfortunately, because they do not actually explain what information is, the categories are blurred. We can only define them as data which has been, organized and communicated.

Judges, rent collectors, they find themselves in this sector, but doctors for instance have an ambiguous occupation straddling self- service as well as information sectors. Few studies of

information work comment on its purpose, function or content. Without this, however, we cannot know who makes decisions.



This is important. What are the parameters which explain information? One, what is the purpose, function and content of the information? What is the relationship between information knowledge and power with regard to the social significance of research and development? Who makes such decisions and on what basis or with what effect? Masses of computer generated information confers no power whatsoever on those who use it. Whereas, at certain points within organizations, it may be crucial to the maintenance of power.

As it happens, post industrialism also blasts over questions of information knowledge and power, especially with regard to the social significance of R& D. The sheer amount of R & D in any given society does not tell us about these questions. I mean we learn nothing about the social role of scientific and technical knowledge, the price put on it and the power of those who manipulate it, who control it. The fact that R & D is often financed for political rather than social reasons and developed for military rather than economic purposes pulls the rug from beneath the bell inspired idea that universities are crucibles of power in the modern world.

The current squeeze on university funding and the politicizing of technology policy makes the idea laughable. That said, , changes are occurring in the occupational structure of the advanced societies. While the relabelling process, noted in Krishnakumar's reflection on post-industrial societies, Krishnakumar was a critic of post industrialism and it still occurs though

today it is programmers becoming software architects rather than plumbers becoming heating engineers.

There is expansion at managerial, professional and technical level. Then, two major questions are raised. before coming to those two major questions, let us see a strong link between innovation and economic growth.

Hence, the frequently exposed British worries about the lack of domestic R&D funding relative to other countries. David Lyon argues this. David Lyon poses two major questions which are raised by the discovery information work and an information sector in the economy.

First, are the apparently new categories of work and occupation leading to shifts in power? Is there an emerging information technocracy which is resting power from previously dominant classes? What opportunities for women are opened by the spread of IT? What is the likely effect of IT on industrial relations? When British rail computerized its freight system, for instance, many middle managers found their positions were simply redundant and personal in subordinate positions actually discovered that they had new powers of control over the work process. The second question is how accurate is the idea of an information sector? Is there a historical march through the sectors as was examined, as was drafted by Alvin Toffler that agrarianism gives way to industrialism and industrialism to information society? This point affects not only the urban societies, but also those to which the promises are luringly held out that they may be able to jump straight from a non-industrial to an information society. Is this really possible or does informatizing depend upon an already advanced situation? When you talk about informatizing, I mean information society, does it not depend on an already advanced social setup, economic setup?

If IT is universal, then whatever kind of IT that you find in US, you will also find in India. That is why IT also is context specific. It is also culturally mediated, socially mediated, economically mediated, politically manoeuvred and so on.

from information workers to an information economy, information workers in an information economy or information society to political and global aspects. This is another theme of the, this information society that echoes of post industrialism are again heard with respect to the political and global aspects of the information society. A common feature of each is that opportunities for political choice and participation will increase.

The difference however is that the means of implementing this is now visible particularly in the possibilities of two way interactive electronic networks. The extreme case is that, of an instant referendum in which voters views are canvassed via cable television which allows people to receive as well as transmit signals from their living rooms. More soberly, IT is seen as a means of enabling an electorate to be more informed or for decision making to be more decentralized.

Those committed to ideals of democratic participation on both the right and the left of the political spectrum may advocate the harnessing of new technologies to such ends. Without adequate access to modern means of communication, any idea of a just political community , is indeed a chimera. But, but a number of important questions are raised by this not least how the necessary telecommunications infrastructure is to be set up.

This is important , and , policy is also important to examine this. In the absence of a coherent policy which is intended to ensure equal access of all to such a communications network, it is difficult to imagine how dreams of electronic democracy could be translated into realities.

The prominent source of anxiety however, is the threat that, that David Lyon suggests that threat which he anticipates that does the widespread political and administrative use of extensive databases which allow for the easy storage, retrieval and transmission of personal information portent of future fraud with the dangers of electronic eavesdropping.

On the one hand, police defense, social security and, and other personnel reassure the public that no innocent person need have any worries about improper prying into their private lives. On the other, cases of wrongful dismissal or arrest which are traced to erroneous computer files serve to fuel fears that in fact, ordinary citizens may well be at risk. But are these computerized forms of surveillance an intrinsically new departure? Or do they rather represent an extension of state governing of information on citizens which has been occurring for many decades? Is it merely the use of these databases by law and order agencies which creates potential perils for citizens or is a deeper process at work in which more generalized forces of social control achieve more power by computerization? And what exactly are the risks involved against which data protection laws and policies are directed? Is wrongful arrest of the tip of an iceberg the submerged portion of which conceals a fundamental issue of invaded privacy and impugned integrity? This, of course, is only one aspect of the state and IT connection.

The connections between government activity and economic technological developments are numerous and significant. Whereas, Bell insisted that the relatively independent operation of economic and political spheres, this position is exceedingly hard to justify for David Lyon. It is quite clear that the, the polity and economy are interdependent and the relationship between the two is far from simple.

Bringing the global situation into focus, however, other connections between the political and economic become clear. According to Bell, there are many, many cases where you will find as we have already discussed about political choice and participation in the context of instant referendum and more informed decision making, in the context of accessibility and surveillance, more secure society or the threat of an Orwellian society.

that prominent source of anxiety that we discussed that does the widespread political and administrative use of extensive databases which allow for the easy storage, retrieval, transmission and of personal information portend a future fraught with the dangers of

electronic eavesdropping or well concept or the relocation of workers and technology transfer, north south divide that is called digital divide. Digital divide, what is that digital divide? Digital divide, is the gulf between, I mean gulf so far as the accessibility to IT between the developed countries and the developing countries is concerned. Then you may say why only developed and developing countries, you may say more resourceful regions, less resourceful regions. You may say in the context of color, in the context of class, even the gulf in the in the accessibility of technologies or IT between the rich and the poor, between the blacks and the whites, between the men and women. I mean digital divide, it discusses the gulf, the gap in the accessibility to IT between developed and developing nations. And it is not only the national sovereignty of the larger and more powerful countries, which is challenged by the power of transnational corporations.

The phenomenon of deindustrialization for example, often viewed in the northern hemisphere in terms of the shrinking proportion of the labor force involved in manufacturing may be equally well understood as the partial relocation of workers to offshore plants in the south. The information society is not inaccurately depicted as a global phenomenon. The current expansion and development of microelectronics related industries require a world market.

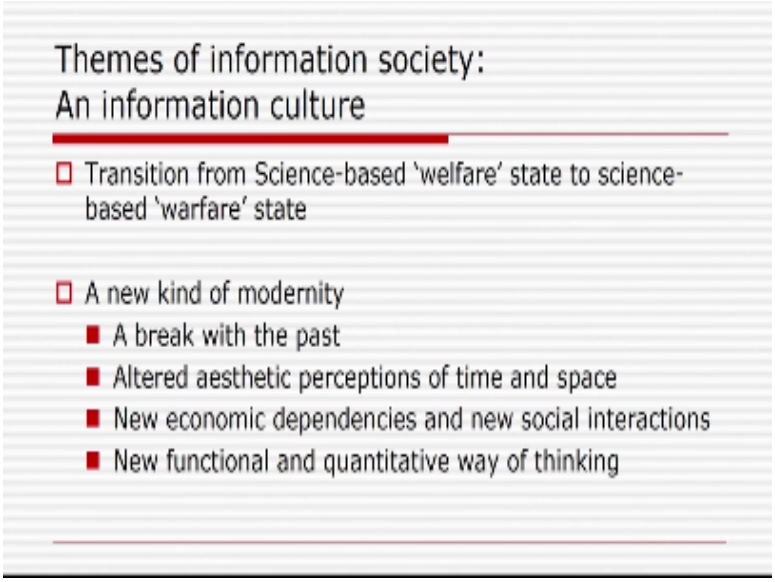
There is no doubt, that the technological potential for beneficial change is tremendous and nothing for example, Stonier, Tom Stonier, Alvin Toffler and others, they make a lot of this angle. Stonier reports great gains made in the upper Volta village of Tangai, you know when solar photovoltaic powered grain mill and water pump were installed. This is an example what he of what he calls the “Second Silicon Revolution.”

Such advances, he Stonier states correctly are dependent on technology and information transfer. That such changes will take place and that the post industrial economy will produce the wealth of information to make it all happen is rather more to question. Now, as a matter of fact, things are somewhat different.

Despite dreams of poorer countries catching up with richer ones and leapfrogging the industrial era, the the situation is overwhelmingly not just one of interdependence, but of dependence. While the advanced societies produce silicon chips comprising hundreds of thousands of elements, in Africa only one person in 18 has a radio. This is the North South divide.

This is how the gulf between the rich and poor nations. So, far as accessibility to IT is concerned. Far from narrowing the North South divide, the evidence suggests that IT helps to widen it. IT in fact, has widened the gap between the rich and poor nations.

As Juan Rada observes technological fixes of whatever nature or whatever technological fixes of whatever nature are nothing but a drop of water in the sea of reality. No treatment of the political and global aspects of IT can afford to ignore the connections between new technology and the kind of war like situation, which we have been witnessing for more than a century now. Including the two world wars as well as the cold war, even the post- Soviet debacle, that war like situation is created.



It may be created for oil, it may be created for IT, it may be created for religion, it may be created for region, it may be created for imperialist expansion. Like earlier post industrialists, Stoniers focuses on the wealth of information, which spells unprecedented affluence both at the private level as well as at the public sector. But as Krishan Kumar laconically notes that the that the science based "welfare state" can be rapidly reclassified as the science based "warfare" state and we and with greater respect for the for the for the actual history of the last 70 years, since independence, India's independence.

Now, it is a science based welfare state to science based warfare state has been witnessed. This has to be examined properly, this has to be understood properly. Having discussed

information workers in an information economy and political and global aspects, let us now discuss an information culture as a part of, as a major theme of the information society.

we have we have already discussed that science based welfare state to science based warfare state. In in an information culture, we notice a new kind of modernity, a break with the past, altered aesthetic perceptions of time and space, new economic dependencies and new social interactions, new functional and quantitative way of thinking. We will discuss this in detail. That the notion of a fifth generation of computers, raises another set of questions besides those of military prowess.

Unlike previous technological artifacts which typically have augmented human energy with improved sources of power, those spawned by IT argument and according to some transcend the human capacity to think and to reason. It must be said that while debate over the workplace and employment aspects of IT is widespread and awareness of the political and global dimensions is beginning to make itself felt, the cultural questions have not as yet received the attention they deserve. Once again Bell's thoughts on post industrial culture make a suitable starting point.

For Bell, a new kind of modernity has been created by the revolutions in transport and communication that have banded together the world economy. It represents a break with the past, thus replacing continuity with variety, tradition with syncretism, its agent is technology. What is its agent? Its agent is technology which by introducing a new metric and enlarging our control over nature has transformed our social relationships and our ways of looking at the world.

Bell maintains that technology has been the chief engine of raised standards of living and reduced inequalities, created new class of engineers and technicians who plan work tasks rather than actually performing them, brought about a new functional and quantitative way of thinking, created new economic dependencies and new social interactions and altered aesthetic perceptions of time and space. While Bell believes that cultural issues are of utmost importance, he partially disconnects according to the David Lyon, he partially disconnects analysis of them from political or social life, each sphere has a different axial principle that of contemporary culture being the desire for fulfillment and enhancement of the self. Of course, while writing of about post industrialism in the 1960s and 1970s, Bell could have had little

clear idea of the rapidity with which the technologies of computing and telecommunications would move to center stage.

Consideration of the so called culture of information is incomplete without reference to different aspects. Do human beings remake themselves in the image of their technology? If so, then there are obvious implications for philosophical debates about the unique place of human beings in the cosmos. Furthermore, there is a scope for critique along ideological lines, along different political lines, economic lines, ethical lines, legal lines and it also brings us back finally, to the overriding question of this study, does IT usher us into a new kind of society? And at this point a further query is highlighted, what is the social meaning of the information society? Is it better understood as a kind of myth or utopia than the social forecast it is more frequently taken to be? before starting with new economy, new classes, let us have a brief critique of the information society.

For the sake of clarity, there are two kinds of information society thesis, each of which makes two kinds of claims. The view popularized in many media and policy accounts stresses the major social changes for the better that follow in the wake of IT (information technology). This popular version may well be buttressed by the findings of social science.

The other use of the information society concept is more cautious and open ended. Here it is a problematic rather than a descriptive term. The two images of information society overlap.

The claims made are both analytical and evaluative and the two kinds of claim are interrelated. Thus, both kinds of information society thesis argument attempt to anticipate the sorts of social change which can be expected as IT is diffused through different economic, political and cultural spheres. And both also provide at least strong clues as to whether such social changes are desirable.

Here the objective of foregrounding a critique to the information society draws together evidence from a wide range of sources in an attempt to assess both the analytical as well as evaluative claims of each information society theme or thesis. The information society idea has both utopian and ideological aspects. Let us see certain things, some of the dangers associated with using the information society concept that is its ideological aspects.

Three are prominent. Number one, it obscures vested interests that were involved in IT and that in fact do much to shape its overall direction. when I said it obscures vested interests which are involved in IT and that in fact much to shape its overall direction, I mean the concept yields no clues as to who wields power, who owns IT, who controls IT, who wields power. It is it is not known, it is it is not discussed yet. Repeatedly for instance the popular rhetoric as assures us that that everyone can own information or the real revolution is personal computer ownership, but information is not steadily diffused in a general way through all social relations, all social strata.

Some I mean intellectual and managerial skills are required to exploit information economically and these are unevenly distributed in society. Advanced hardware and software for information processing are expensive and therefore, the few who can afford them are scarcely challenged by others using inferior machines. the first one is who wields power and the second one, the inequalities and conflicts discernible in the surface and often related to underlying contradictions, conflicting interests between labor and capital. Such inequalities are felt globally between north and south, northern hemisphere and southern hemisphere in the theatre of transnational corporations and military interests and locally whether with the word processor operators lack of control over her work or the suspected criminals difficulty in gaining access to information held about him or her. Information power is only a reality when the access exists to the means of collecting, storing, retrieving and communicating the information.

And the second one as we are discussing the inequalities and conflicts discernible on the surface are often related to underlying contradictions. these two may be disguised by the information society concept and within capitalism private gain is constantly set against efforts to socialize production. In the late 20th century and early 21st century , what information society has done? Information society has tried to privatize profit and nationalize loss. And in the late 20th century and the early 21st century the latent potential for trade in information for this entity to become a commodity is being realized. While many undoubtedly gain from this process others lose. Public libraries and private service broadcasting are both time honored concepts whose public status is under threat as information has a price put on it.

If you look at new integrated services digital networks what do they mean? They mean more efficient information services, but higher costs for ordinary telephone subscribers. Another

discordant element which may not qualify as a contradiction in the same sense is the collusion of military with micro-electronic interests in the modern world. The same technologies whose avert purposes and actual achievement in many cases are to reduce drudgery, increase efficiency, conserve resources and promote mutual communication are also dedicated to hostile destructive and lethal ends.

Regardless of any justifications which may legitimately be presented for expanding electronically a nation's defense capabilities most discussions of on the information society conceal in the background the huge military impetus to IT research and development (IT R& D). Then the first one we have discussed who wields power and the second one the inequalities and conflicts discernible on the surface are often related to underlying contradictions. And these two may be disguised by the information society concept. Within capitalism what we find that loss is nationalized whereas, profit is privatized.

And thirdly the arrival of the information society appears as an entirely natural event. The outcome of progressive tendencies within western industrial societies it may be revolutionary in its consequences such that it represents a new era in human history, but it is simultaneously the obvious and logical way forward. let us witness the posture struck against any who dare question the ways in which IT is implemented.

By arguing that the information society has significant ideological aspects we do not want to suggest that it is some kind of dominant ideology accepted by the masses for any given populace, of any given population. On the contrary there is plenty of evidence of coolness fear and resignation towards as well as sober and realistic acceptance of the new technologies. Likewise it should be stressed that using the term ideological does not mean that there is a deliberate conspiracy to deceive the general public by using the information society slogan.

If this is correct then the however, the effect of using it is to disguise the reality of powerful interests and beliefs at work within it. On the other hand it is clear that notions like the information society have become a working reality for many. Educational institutions neatly fall in line with please for closer ties with industries.

Businesses do computerize some most successfully some soon discovering they are encumbered with digital white elephants. The kind of critique to which this section on the 'critique to information society' aspires catches both the sense of potential for socially appropriate development of information technology without pretending that it can occur without considerable struggle on several fronts. And the sober realism of that luddite without succumbing to a sheer negativism or pessimism.

What is a luddite critique or liberal critique if some questions will come up then we will address. we must try to place them in the context of a normative and critical social analysis. In order to show both the enormity of the obstacles to be overcome and possible routes to their realization.

The yearning credibility gap between the futuristic forecasters and fantasies on the one hand and the hard realities of government transnational and military involvement in information technology demands a sense of urgency within the information society problematic. It also points up to a points up vital role for serious social analysis within the social making process analysis which is not simply set up within either optimistic or pessimistic scenario. From here onward what we are going to do, we are going to discuss a marriage of convergence. what may be the possible social impacts of, what are the what are the factors which impact which influence IT ? What are the factors? As we discussed the military factor, the tcommercial factor and the government factor. These three factors, they influence the decisions within IT, the power relations within IT, the social relationships that IT has been able to forge.

quickly very quickly we will discuss these factors because it is well known that is why I gave you the example why atom bomb was created. I mean it was in the it was a part of military technology. it was a part of war technology, it was also aimed towards imperialist colonialist expansion. And military factors, commercial factors and the government factors they very much influence the shaping of IT.