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Science, Technology and Society

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Now coming to our discussion on the information society. We will start with Alvin Toffler okay, you see we can we can look at whenever we will be using information society we will be using information society, post-industrial society, wired society interchangeably does not imply that they do not have differences, we can also make a point of reference that we have made a shift from post-industrial society to information society.

But for the time being we do not want to make such distinctions, that we want to use these terms interchangeably to make sense of what is constituting or what constitutes the information society. Alvin Toffler he wrote many books in fact, I mean he wrote future salt, he wrote third wave, and so on. Alvin Toffler, he characterized the development of society in three phases or three waves the first wave, the second wave, and the third wave.

The first wave is characterized by the agricultural society, the second wave is characterized by the industrial society, and the third wave is characterized by the information society. I mean what kind of transition which has taken place in the in the development of society. It also held the Marco, but also it also marks the changes in the modes of production okay. Suppose, if you look at Marx's notion of mode of production.

First there was primitive communist society, or primeval communal society and I am trying not to use primitive communist society precisely, because primitive this concept, this term itself is a colonial construct okay. I will say hunting and gathering economy, then we saw slave society,

feudal society where agriculture was very dominant, then we saw I mean, that is the first way in the second wave. Now we saw capitalist societies with industrialism was very dominant.

Again in capitalism in the advanced stage of capitalism okay, we find information society or post-industrial society okay. James Martin he turned, he coined the term word society wired society okay, to note information society or post-industrial society. Then what is this, you know agricultural society, you know industrial society, you know information, but what is so significant about agricultural society.

And the mode of production will be hovering around agriculture. In industrial society agriculture will be replaced by more and more machines, industries, and the mode of production will be hovering around only industry. Even agriculture has to be industrialized, the same bullock-cart system cannot go in an industry agriculture also requires to industrialized, but unfortunately in India agriculture has been corporate aged by the introduction of seed companies.

But if you look at the scenario of agriculture in India it also requires industry lines okay. Then when in the advanced stages of capitalism what we find is that most industrial society, information society the mode of production has changed further okay. And computer was the biggest invention of this page in the portion is to the society or information society or wired society okay.

Now what are, for Toffler what are the six grounding principles of the third wave concept. Toffler third wave concept is based on six grounding principles six grounding principles okay, I mean six grounding principles, one standardization, secondly specialization, thirdly synchronization, fourthly maximization, fifthly concentration and sixthly centralization okay.

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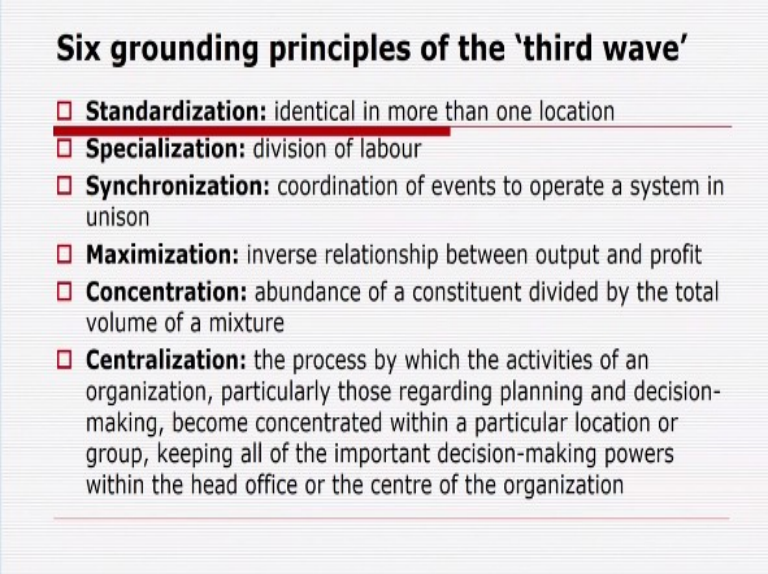

What is the this standardization diversity means standardization refers to the products which will be identical in more than one location in the context of the information society, in the context of post-industrial society, our products need to be standardized. What do we mean by specialization, specialization is related to division of labour. Now to produce a single laptop, we need specialists to do this not a single individual can produce a laptop like this.

We need variety of specialists to prepare a laptop. Now somebody can say that you know we can reassemble the parts and do that, but it goes beyond I mean it violates copyright, that is another thing we will discuss. What is synchronization, that is it refers to the coordination events to operate a system in unity. You must have seen the railway timetable okay, they are synchronized, they are been coordinated in such a manner that they can operate in unit.

If timings will not be synchronized in the context of trains okay, then you will find that in one, in a single platform there will be four, five trains will be hovering, will be waiting it should not happen right. It does not happen that, that these timings have been synchronized. What does maximization refer to, I mean inverse relationship between output and profit, then I want to maximize my output.

Then what does maximization refer to, it is an inverse relationship between input and profit. Then I must maximize my profit with minimum level of input okay. Then what does concentration refer to in abundance of a constituent divided by the total volume of a mixture. What does centralization refer to, it is the process by which the activities of an organization particularly those regarding planning and decision making become concentrated within a particular location or group keeping all of the important decision-making powers within the head office, or the center of the organization okay.

If you look at the software company you will find almost all six principles in place okay. The information society I mean this hardware concept has its roots in the literature of post-industrialism. When we talk about post-industrialism Daniel Mel assumes greater significance. In 1973 he wrote the coming of post-industrial society. What is post-industrialism in general is a popular social science notion of the 1960s and 1970s which held at the end of the industrial capitalist era and the arrival of service or leisure society.

That is why in the last lecture we discussed the collapse of the dreams of modernity, the collapse of the dreams of modernity, I mean European modernity that is why we come to a point of post-industrial or information society. That capitalist modernity that industry modernity okay. Then what is a post-industrial society? A post-industrial society is for according to Daniel Bell is one where knowledge has displaced property as the central preoccupation and the prime source of power and social dynamic, number one.

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Number two technicians and professionals are the preeminent social groups, number three service industries are more important than manufacturing. Then I repeat a post-industrial society is one where knowledge has displaced property as the central preoccupation and the prime source of power and social dynamic. See earlier notion was that property especially land was the main source of power.

Even today you may find that, but it is on the wane, it is on decline knowledge has essentially displaced property as the central preoccupation and the prime source of power and social dynamic. Knowledge has been equated with power that is why Michele Foucault in 1980 power knowledge than 70 or 80 zero power knowledge distinct sacrament knowledge is power. Then who where the earlier.

Who were earlier the preeminent social groups earlier land owners, feudal owners, then capitalists became I mean industrial manufacturing class where the preeminent social groups. But now technicians and professionals they have become preeminent social groups. And thirdly manufacturing has given way to service industries. Service industries have become more

important than manufacturing industries in this sense we are, I mean Daniel Bell used that post-industrial society okay.

Then what we are going to do now that that from post-industrialism to information society in the context of Bell okay. And then we will discuss the relationship between IT and social change.

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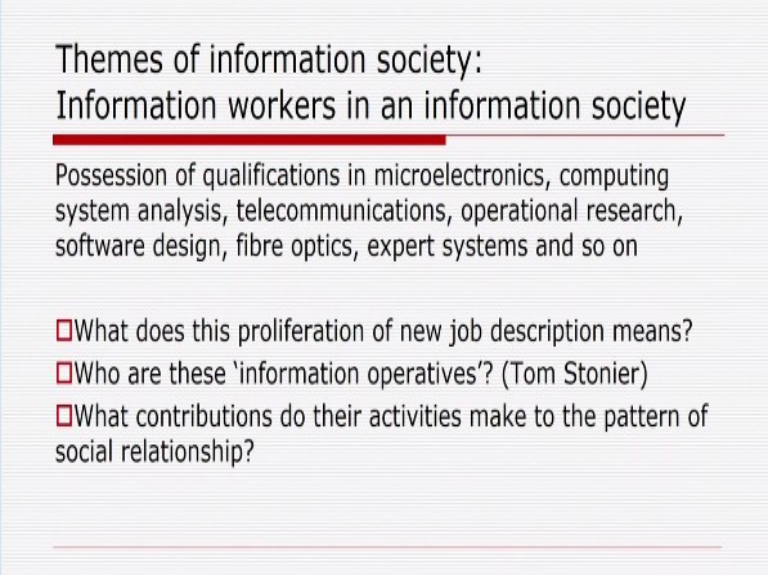

Before discussing themes of information society okay.

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Now what we are going to do from post-industrial society, from post-industrialism to information society the roots of the information society idea are intertwined in a complex manner. It is hard to disentangle the diverse strands of attempted social prediction, government policy, futuristic speculation, and empirical social analysis. Yu will find that it depends upon social scientific concepts as the information economy, indulges briefly in coated predictions.

I mean when I use the term prediction I use it you know more scientific sense if I say that to know in 1951 the production of rice was x quintal in India, then in 1961 then X + 1 quintal, and in 1971 X + 2 quintal, if this is the trained off production of rice, then in 2021 what will be the production phase. If the amount of rainfall is X unit in 1981 X + 1 or X - 1 unit in 1991 X - 2 units in 2001, then what will be the amount of rainfall in India in 2050.

In this sense we are using prediction not in an astrological sense okay. Then what kind of thing that we want to see in the context of such transformation from post-industrial society to information society okay. Bell argues that the information society is developing in fact in the context of question strategy. One readily identifiable strength on which hopefully accounts of

information society often rely is the idea of post-industrialism especially the version associated with Daniel Bell.

This is the view that just a gradient society was replaced by industrial society as the dominant economic emphasis shifted from the land to manufacturing, so post-industrial society develops as a result of the economic tilt towards the provision of services. The increased part played by science in the productive process the rise to prominence of professional scientific and technical groups plus the introduction of what is now called information technology, all bear witness to a new axle principle.

What is that, I mean what is that principle which is at the core of the economy and society. This axle principle I mean the energizing principle that is the logic for all the others is the centrality of theoretical knowledge. Bell argues that the information society is developing in the context of post-industrialism, he forecasts the growth of a new social framework based on telecommunications.

Now which may be decisive for the way economic and social changes are conducted, the way knowledge is created and retrieved, and the character of work and occupations in which individuals are engaged. The computer plays a pivotal role in this revolution. Bell also sketches other significant features of the information society okay, there may be, I mean rise to prominence of professional scientific and technical groups a new social framework based on telecommunications.

Information is treated as a commodity, knowledge in information supplant labor and capital as the central variables of the economy, the end of the industrial capitalist era and the arrival of a service or leisure society.

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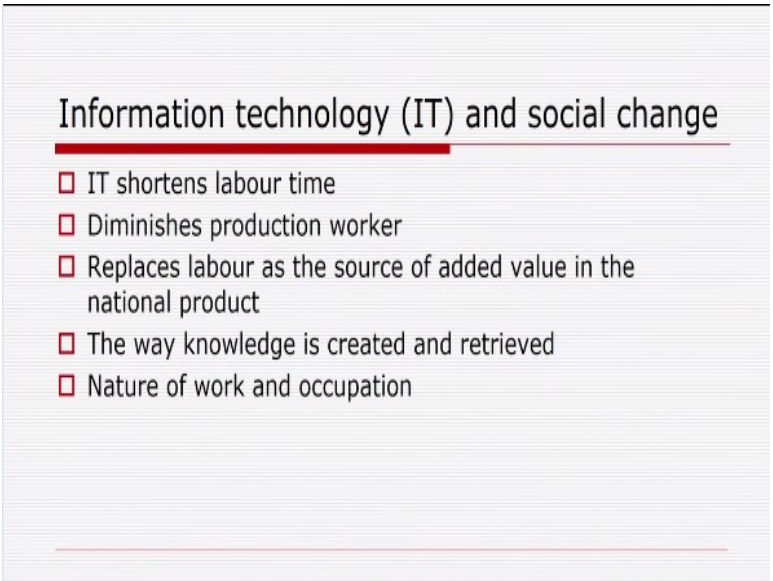

Then how IT shortens labour time diminishes production worker. IT replaces labour as the source of added value in the national product, the way knowledge is created and retrieved, nature of work and occupation. We will see, we will discuss in detail okay.

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Then Bell suggested, Bell try to sketch significant features of the information society I mean IT by shortening labour time and diminishing the other production worker actually replaces labour as the source of added value in the national product. Knowledge and information supplied to labour and capital as the central variables of the economy. He comments on the way that information is being treated as a commodity with a price tag on it and how the position of information increasingly confers power on its own.

Let us say knowledge is power, information is power, because it is subject to commodification okay. They have been information in knowledge have been commodified to such an extent that they have become powerful weapons. Bell recognizes some of the ambiguities though involved in identifying the service sector and proposes that economic sectors be divided into at least three activities.

One extractive activities, secondly fabrication activities, and thirdly information activities. And this way Bell claims that one may monitor the penetration of information activities into more traditional in the age of agriculture manufacturing and services that is why I said even in the

culture requires industrialization okay. We cannot go on with same bullock-cart system for all time to come.

But what kind of in industrialization, who will own the process of industrialization, the state which has been the sole sponsor of such research, scientific research till the late 1980s and early 1990s has withdrawn itself from such basic responsibilities, since 1990s. Bell underlines ways in which these areas are expanding in the wake of information technology development. He forces major social changes resulting from the establishment of new telecommunications, infrastructure.

Such huge changes will occur as the merging technologies of telephone, computer, cable television and video discs lead to vast reorganization in the modes of communication between persons the transmission of data, the reduction if not the elimination of paper in transactions and exchanges that is why we all say that environment friendly pepper free society new, because it effects the bamboo biodiversity conservation adversely new modes of transmitting huge entertainment and knowledge and so on.

This in turn will intensify concern about population distribution, national planning, centralizes and privacy surveillance and so on. For Bell the fateful question or one might say, the consumerist question is whether the promise will be realized that instrumental technology is open the way to alternative modes of achieving individuality and variety within a vastly increased output of modes.

What is that instrumental technology we have discussed this in the context of Weber's technology of accent, in social accent that there are four types of selection which Weber offered, traditional social action effective or emotive social action, Bell resonance social action and goal resonance action, and instrumental technology it comes under this goal resonance social action, I mean it must have an objective, it must be instrumental in nature okay, in that objective it must have a clear objective.

Bell asks many of the right questions, I mean indicates a worth while lines of impact, this is why bells work deserves to be taken seriously. Bells attempt to find a thoroughgoing alternative to

Marxian class analysis under estimates both the resilience of some familiar features of modern societies and the extent to which new conflicts, new struggles could arise within this information society.

See Marxian's notion of classes was based on manifestations of economic differences okay. Now bell tires to examine this we will discuss this in the lectures to follow how such notion has to be rejected, such notion has to be reinserted, and such notion has to be recon sexualized okay, in the context of the information society post-industrial society and so on okay. We will come to this, but staying on with the transition from post-industrial society to information society.

The familiar features include military, commercial, and government talk, these are the factors which impact, which influence IT. If you look at the production of atom bomb during the Second World War, this is also a technology which was demanded, which was created in the context of the war, militant. No small significance lies in the fact that it was military requirements which gave birth to modern computers.

The massive mainframe I mean ENIAC built in 1946 in the electrical engineering department of the University of Pennsylvania was intended to assist the aiming of burns and was soon involved in calculations for the atom bomb. Neither is it irrelevant to note that huge forces of international capitalist commerce are today locked in mortal combat to capture markets and conquer opposition within the lucrative high-technology felt, nor is it an accident that governments are so active in promoting IT and purchasing its products.

IT is a powerful tool for monitoring and supervising people's activities. In other words one does not have to look far, does not have to look far before this question comes to mind does IT bring about a new society without precedent or does it rather help to intensify a certain processes in today's society of which we are all too aware. What of new conflicts and struggles are we entering an era not of bell's rather smoothly harmonious information society, but of new social frictions and power alignments within a divided and controlled and contradictory information society.

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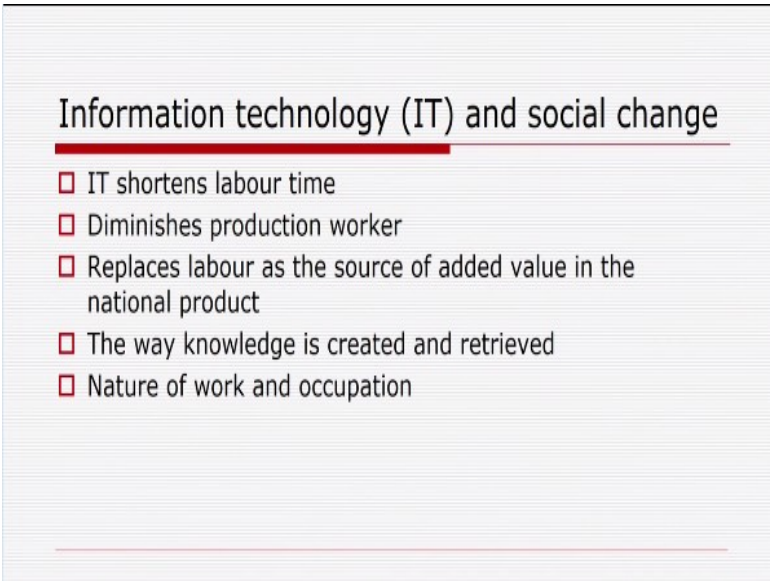

This is what this is what David Lang tried to poach that around the same time as bells work on post-industrialism or European contribution appeared which took account of the same social and economic trends, he was trying to bell, I am sorry, not bell, I mean Lang try to attribute this concept of, I am in this question of bell to Alvin Tofflers work I mean in Marxist. Twin study took a quite different tack from bells.

He challenged the blank post-industrial assumption that cost travel class trouble was a thing of the past. Although he argued that many classes images are too bound up with the era of capitalist industrialization. He invited readers to consider the fundamental importance of class situations conflicts and movements in the programmed society, I mean weird society, programmed society, information society, post-industrial society.

I mean this is we can we are using them interchangeably. In particular he had in mind the major cleavage between technocrats and a more disparate grounding whose livelihood and lifestyles are governed by them. Property ownership is less a bone of contention than the opposition brought about, because the dominant classes dispose of knowledge and control information. So do

changing technologies and shifts in educational qualification and skill lead to novel class alignments.

But this one, I mean class rejected, class reasserted, and in class reconceptualized we will discuss in the lectures to follow. The analysis of twin and others hint at wider movements of power and whether class rejected class reasserted in class we conceptualized okay, these concentrate upon the workplace and on production the use of IT within government's, education, the media, and the domestic sphere idealize is in the workplace means that more and more social relationships are mediated by machines.

What does this imply for power, mark poster suggests that because new forms of social interaction based on electronic communications devices are replacing older types of social relations we should ask we should ask of, we should speak of a new mode of information. He too is questioning the relevance today of some marks and assumptions, but for different reasons from Daniel Bells okay.

But I Alvin Toffler and Daniel, David land they are trying to strike a critical balance yeah. From post-industrial society to information society we can we can look at social forecasters and social planners, and the information society as you probably okay. We quickly I mean the way James Martin or talked about the weird society what does it mean what is that weird society? Weird society I mean social forecasting, social planning when you do it is the non-polluting, non-destructive quality of IT as a major point, no point in its favor okay.

Even Toms Stonio said that living in a post-industrial world means that not only are we more affluent, more resourceful and less likely to go to work, but also more likely to democratic okay. Now these are very important dimensions again in the in favor of IT okay. That is why from the very beginning we suggested that no do not look at a one-way relationship between science technology and society, but try to look at both science and technology as a part of societies as reflected in the embedded model okay.

New communications technologies hold out the next problems that demise of war, as Tom Stonio said, there is a greater likelihood that we will not go ahead with one okay. But these things are changing, I mean no I mean even if you do not go ahead with war, but you create a field as if a war is coming, as if a war you are knowing okay. In this sense hear it. Now the time, the way we look at these social forecasting and social planning, we must do it in a futuristic sense okay.

Now when we look at the information society as a problematic what are the prospects for the information society concept. The answer is not straightforward for one thing more than one image of the information society is available, the popular image of a social transformation along with third wave lines is not the same as the fuzzy remains produced within more careful social analysis of societies coming to terms with a range of more and less profound political economic and cultural effects of information technology.

I mean there are you may look at these things in an interesting manner, there may be two features which we may look at of the information society problematic, one is that social analysis must grapple with the ramifications of the fusion of technologies which comprise IT information. Then I repeat social analysis must grapple with the ramifications of the fusion of technologies which comprise IT.

And the other note worthy feature is that as social analysis exposes alternative options in the adoption of new technology that are in fact available to government industry and the public discussions of the strategy for setting new technologies become more relevant. Do government sponsored slogans such as automate or liquidate represents genuine choices, is it data or persons that ought to be protected by law.

It is important, I mean government industry, corporate sectors they always opine that no you have to optimate or you have to liquidate no, no data have to be protected. But what do we really want as a social scientist, as a student of social sciences I must pose this question, that either automate or liquidate does it provide or are we entangled by only these two groups choices, is that no other choice.

If I do not automate, then we will definitely liquidate there is no other option, who are more important whether data or persons, from the data we have got medicines which must cure the people. Now we are trying to protect the data by increasing the prices of medicines in such a manner that the people at large will be at stake, they will be, they cannot access medicines that is why these, I mean how does one decide what counts as an appropriate technology when microelectronics is concerned.

Social analysis can serve to indicate the conditions under which ethical considerations and social hopes might be realized okay. Let us try social analysis is very important when we try to grapple with IT.

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