

**Globalization: Theoretical Perspectives**  
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**Lecture 30**  
**Manuel Castells: Introduction**

Welcome back to the class, we are continuing our discussion on this important theme on globalization literature. That is, the whole questions around spatiality and temporality of a globalized world. So, a series of discussions and debates about themes related to space, place or time and flows. So, these are the some of the important themes around which globalization debates really is raging.

So, we briefly discussed Saskia Sassen yesterday and we also discussed David Harvey and Anthony Giddens in the previous classes and from today onwards, we are starting slightly detailed discussion on another very important or towering personality, a very important scholar on globalization, again a sociologist his name is Manuel Castells.

So, Castells is a very important figure, we will have I think 4 hours, 4 classes on discussion on Manuel Castells his theory on network society has been extremely influential. He has one of the very broad ambitious theories about globalization of the contemporary times, where he has very interesting take about the temporal and socio-temporal dimensions of globalization.

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Born in Spain in 1942, Castells had to move to France due to his student activism and completed PhD from University of Paris in 1967.



Continued there as a faculty, and moved to University of California, Berkeley in 1979.

Considered to be one of the founding members of New Urban Sociology

- The *Information Age* trilogy:
- Castells, Manuel (1996). *The Rise of the Network Society, The Information Age: Economy, Society and Culture*
- Castells, Manuel (1997). *The Power of Identity, The Information Age: Economy, Society and Culture Vol. II.*
- Castells, Manuel (1998). *End of Millennium, The Information Age: Economy, Society and Culture Vol. III.*



So, just have a very brief look at Manuel Castells, he was born in Spain. He is from Spain, born in 1942. Castells had to move to France due to his student activism, he was very actively participating in student politics and then had to flee the country and completed his PhD from University of Paris in 1967 and after that, he moved to the US, where he worked in University of California, joined in 1979 and considered to be one of the most important influential sociologists on the new globalization.

So, his theories about informationalism, his theory about network societies, his theory about spaces of flows, his theory about the timeless time, all these things have been extremely influential. So, he is known widely for his three series book or in other words, this information

age of trilogy, which consists of the first book published in 1996 titled 'The Rise of the Networked Society', where he put forward his basic argument about a networked society, the information age, economy, society and culture.

And the second book came out in the year after 1997, The Power of Identity, 'The Information Age: Economy, Society and Culture' and the last one appeared in 1998, End of Millennium, 'The Information Age: Economy, Society and Culture'. So, these three books are very voluminous books made Castells one of the extremely popular and one of the very important figures, very influential figure in the academic discussion of globalization.

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Toward a Sociology of the Network Society  
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So, before we actually started discussing Castell's theories on space and time, I thought it is important that is less interesting to discuss one of his papers, where he has written about the need for transforming the discipline of sociology. So, I know that most of the students most of the learners of this course are sociology students and there are sociology faculty and myself a student of sociology. So, it is something very interesting to see what Castells has to say about reorienting the discipline of sociologist.

So, this article we will have this session to look at his argument about sociology in network society before and after that, we will take up for the substantive discussions on space and time. So, this article titled the 'Towards a Sociology of the Network Society', published in 2000 in the journal 'Contemporary Sociology'.

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## Toward a Sociology of the Network Society

MANUEL CASTELLS

University of California, Berkeley



## The Call to Sociology

The twenty-first century of the Common Era did not necessarily have to usher in a new society. But it did. People around the world feel the winds of multidimensional social change without truly understanding it, let alone feeling a grasp upon the process of change. Thus the challenge to sociology, as the science of study of society. More than ever society needs sociology, but not just any kind of sociology. The sociology that people need is not a normative meta-discipline instructing them, from the authoritative towers of academia, about what is to be done. It is even less a pseudo-sociology made up of empty word games and intellectual narcissism, expressed in terms deliberately incomprehensible for anyone without access to a French-Greek dictionary.

Because we need to know, and because people need to know, more than ever we need a sociology rooted in its scientific endeavor. Of course, it must have the specificity of its object

Information Age. We are needed because as would-be scientists of society we are positioned better than anyone else to produce knowledge about the new society, and to be credible—or at least more credible than the futurologists and ideologues that litter the interpretation of current historical changes, let alone politicians always jumping on the latest trendy word.

So, we are needed, but to do what? Well, to study the processes of constitution, organization, and change of a new society, probably starting with its social structure—what I provisionally call the network society.

## A New Society

Except for a few stubborn academic economists, there is widespread consensus that we have entered a new economy. I contend we are also living in a new society, of which the new economy is only one component. Since this society will unfold, throughout the world, during the twenty-first century, the survival of sociology



So, why that certain article is important is because, we know that sociology is a product of modernity, sociology as a discipline emerged during the beginning of modernity because every discipline emerges as a response to the kinds of changing circumstances, when a group of scholars feel that the existing frameworks or existing theories are incapable of explaining the large scale transformations, then they think about fresh ideas about novel frameworks about new ways of looking at things and then gradually it gets consolidated into a new theory or a new theoretical framework, gradually that gets consolidated as a new disciplinary framework with very specific epistemological as well as methodological foundations.

So, sociology is a product of modernity in that sense, because as sociology emerge in Europe, especially in Western Europe, during the most tumultuous times of the periods related to modernity. So, in essence, sociology became a necessity because the existing disciplines were not really capable of explaining the kind of fundamental transformations happening in the European societies during this eighteenth, nineteenth and twentieth century. So, that is why scholars or intellectuals of that particular time they identified or they believed that a new discipline is required, a new discipline that is dedicated to understand, to explain or to study the distinct feature of the social.

So, the social emerged for the first time as a distinct field of inquiry. So, sociologists no longer were seen as a residual element of political or religious life, but it was seen as a discipline in its own right. So, those who have studied sociology, especially classical sociological theories, know that sociology emerged after having been heavily influenced by natural sciences and then also ruling was modelled after a natural science. Sociology was seen as a positivist science. Sociology believed that it is a science and it can use scientific methods to understand that.

That is why we understand sociology as a modern social science, it is a product of modernity, it emerged along with one of the foundational transformations of human society, that is the emergence of modernity, the rise of individual freedom, the rise of capitalism, industrialism, rise of nation-state and a whole set of new ideas, new institutions, so along with all this transformation, sociology also emerge.

Now the whole question of what Castells is addressing is that this discipline like sociology, require a reorientation during this particular time, can we say that the emergence of globalization or the whole discussion that we are undertaking, does it warrant that discipline like sociology also reinvent itself? Does it have to or can it afford to continue with its own age-old, centuries or decades old conceptual frameworks or methodologies? Or should it actively

reorient to reinvent itself? Should it actively, critically look at its own epistemological as well as methodological foundations.

And Castells is a firm advocate, a very strong advocate of the argument that sociology needs to reorient. Sociology, we cannot afford to have these old frameworks and methodologies to study society, because what constitutes society and what is social has undergone substantial transformations. And if a discipline is not really sensitive to these transformations, then after some time, this discipline will become obsolete, we move forward and then discipline will be incapable of understanding this subject matter? So, that is his argument in this particular paper?

So, it is not a very lengthy chapter paper, some 8 to 9 pages. But here he makes some very powerful arguments, very debatable arguments, I would say, I am not completely convinced by all the arguments that he makes, but it is very provocative. It makes you think, it makes you look into some of these arguments and see what kind of responses is required.

So, he says that the twenty first century of the Common Era, did not necessarily have to usher in a new society, but it did. So, it is very, very clear that the beginning of a twenty first century, it heralds the emergence of a new society, that itself is a big claim that are we saying from 2000 onwards, does it really represent a new society and he is very affirmative, very categorical that yes, it constitutes a new society. So, what does he mean by this new society?

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...towers of academia, about what is to be done. It is even less a pseudo-sociology made up of empty word games and intellectual narcissism, expressed in terms deliberately incomprehensible for anyone without access to a French-Greek dictionary.

Because we need to know, and because people need to know, more than ever we need a sociology rooted in its scientific endeavor. Of course, it must have the specificity of its object of study, and thus of its theories and methods, without mimicking the natural sciences in a futile search for respectability. And it must have a clear purpose of producing objective knowledge (yes! there is such a thing, always in relative terms), brought about by empirical observation, rigorous theorizing, and unequivocal communication. Then we can argue—and we will!—about the best way to proceed with observation, theory building, and formal expression of findings, depending on subject matter and methodological traditions. But without a consensus on sociology as science—indeed, as a specific social science—we sociologists will fail in our professional and intellectual duty at a time when we are needed most. We are needed because, individually and collectively, most people in the world are lost about the meaning of the whirlwind we are going through. So they

with its social structure—what I provisionally call the network society.

**A New Society**

Except for a few stubborn academic economists, there is widespread consensus that we have entered a new economy. I contend we are also living in a new society, of which the new economy is only one component. Since this society will unfold, throughout the world, during the twenty-first century, the survival of sociology as a meaningful activity depends on its renewal, in accordance with the new phenomena to be studied and the new analytical issues to be tackled. But what is this new society? Since the focus of this article is on sociology, not society, I have no option but to be schematic and declarative, rather than analytical, taking the liberty to refer the reader to my trilogy on the matter (Castells [1996] 2000a). Here are, in my view, the main dimensions of social change that, together and in their interaction, constitute a new social structure, underlying the "new society."

First is a new technological paradigm, based on the deployment of new information technologies and including genetic engineering as the information technology of living matter. I understand technology, following Claude Fischer (1992), as material culture—that is, as a socially embedded process, not as an exogenous



I am not going into these paragraphs, but these are some of the important points. "Except for a few stubborn academic economists, there is a widespread consensus that we have entered a new economy, I contend we have, we also live in a new society of which the new economy is only one component". So, we mentioned in the previous class that if modernity was associated with industrialization or industrialism and the post modernity or late modernity is associated with information and so that is what Castells very strongly argues.

So, this new society is characterized as a new economy, which revolves around service industry or informationalism and not that of the industry, so that is a kind of an argument which has not been completely accepted by everybody. So, that is why he says that, except some stubborn economist. So, he says that the new economy is only part of a new society, because it is not the society alone which drives the society into a new format, but rather it is a part of a larger story.

“Since the focus is on sociology, not society, I have no option but to be schematic and declarative rather than analytical taking the liberty to refer to read it to my trilogy on the matter”. These are the three books that we mentioned in the beginning of the class, that very influential works which Castells put forward, a very sweeping argument about the larger changes that happen.

Here in my views, the main dimensions of social change that together and in their interaction constitute a new social structure underlying the new society. So, why does Castells say that a new society has come into picture or why or what are the reasons or how does he argue that?

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SOCIOLOGY STANDS IN ITS SCIENTIFIC CREDENTIALS. Of course, it must have the specificity of its object of study, and thus of its theories and methods, without mimicking the natural sciences in a futile search for respectability. And it must have a clear purpose of producing objective knowledge (yes! there is such a thing, always in relative terms), brought about by empirical observation, rigorous theorizing, and unequivocal communication. Then we can argue—and we will!—about the best way to proceed with observation, theory building, and formal expression of findings, depending on subject matter and methodological traditions. But without a consensus on sociology as science—indeed, as a specific social science—we sociologists will fail in our professional and intellectual duty at a time when we are needed most. We are needed because, individually and collectively, most people in the world are lost about the meaning of the whirlwind we are going through. So they need to know which kind of society we are in, which kind of social processes are emerging, what is structural, and what can be changed through purposive social action. And we are needed because without understanding, people, rightly, will block change, and we may lose the extraordinary potential of creativity embedded into the values and technologies of the

Twenty-first century, the survival of sociology as a meaningful activity depends on its renewal, in accordance with the new phenomena to be studied and the new analytical issues to be tackled. But what is this new society? Since the focus of this article is on sociology, not society, I have no option but to be schematic and declarative, rather than analytical, taking the liberty to refer the reader to my trilogy on the matter (Castells [1996] 2000a). Here are, in my view, the main dimensions of social change that, together and in their interaction, constitute a new social structure, underlying the “new society.”

First is a new technological paradigm, based on the deployment of new information technologies and including genetic engineering as the information technology of living matter. I understand technology, following Claude Fischer (1992), as material culture—that is, as a socially embedded process, not as an exogenous factor affecting society. Yet we must take seriously the material transformation of our social fabric, as new information technologies allow the formation of new forms of social organization and social interaction along electronically based information networks. In the same way that the industrial revolution, based upon generation and distribution of energy, could not be



And he says that first is a new technological paradigm based on the deployment of new information technologies and including genetic engineering as the information technology of living matter. So, Castles argues that first and foremost reason why he says that the world has moved into a new society is the influence of new forms of technology, which includes genetic technology as the information technology of a living matter.

I understand technology following Claude Fisher as material culture that is as socially embedded processes not as an exogenous factor affecting society. So, there are very interesting discussions about how do you look at technology, can we say that technology is impacting society, as if technology is an external object and which is impacting society and driving change or can we or should we look at technology as a part of a society, because when technology changes, society also changes and technologies change mainly because society is also seeing.

So, that is a very interesting dialectical relationship between the technology as well as a society and it is not that these two things are kind of kept apart. Yet we must take seriously that material transformation of our social fabric, the new information technologies allow the formation of new forms of social organization and social interaction along electronically based information network.

So, this is one of the most compelling arguments that new forms of social interaction and new forms of social organization is taking place through the electronically based information networks. So, this is one of the important arguments where he talks about spaces of flows, that we will discuss in the coming classes. So, this is one of his central arguments.

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separated from the industrial society that characterized the last two centuries, the information technology revolution, still in its early stages, is a powerful component of multidimensional social change. While new information technologies are not causal factors of this social change, they are indispensable means for the actual manifestation of many current processes of social change, such as the emergence of new forms of production and management, of new communication media, or of the globalization of economy and culture.

The second dimension of social change is, precisely, globalization, understood as the technological, organizational, and institutional capacity of the core components of a given system (e.g., the economy) to work as a unit in real or chosen time on a planetary scale. This is historically new, in contrast with past forms of advanced internationalization, which could not benefit from information and communication technologies able to handle the current size, complexity, and speed, of the global system, as it

sentation is redefined as well, since democracy was constituted in the national enclosure. The more key decisions have a global frame of reference, and the more people care about their local experience, the more political representation through the nation-state becomes devoid of meaning other than as a defensive device, a resource of last resort against would-be tyrants or blatantly corrupt politicians. In another axis of structural change, there is a fundamental crisis of patriarchy, brought about by women's insurgency and amplified by gay and lesbian social movements, challenging heterosexuality as a foundation of family. There will be other forms of family, as egalitarian values diffuse by the day, not without struggle and setbacks. But it is difficult to imagine, at least in industrialized societies, the persistence of patriarchal families as the norm. The real issue is how, at which speed, and with which human cost, the crisis of patriarchy will extend, with its own specific forms, into other areas around the world. The crisis of patriarchy, of course, redefines sexuality, social-



And this he would argue was something unprecedented, it never happened that you will be able to interact and not only that, you will be able to interact you are, entire social organization is now passing through or it is taking place through these information networks and that itself has the capability to shape and reshape and change the features of this social organization itself. So, he considers it as a very important one.

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change, such as the emergence of new forms of production and management, of new communication media, or of the globalization of economy and culture.

The second dimension of social change is, precisely, globalization, understood as the technological, organizational, and institutional capacity of the core components of a given system (e.g., the economy) to work as a unit in real or chosen time on a planetary scale. This is historically new, in contrast with past forms of advanced internationalization, which could not benefit from information and communication technologies able to handle the current size, complexity, and speed, of the global system, as it has been documented by David Held et al (1999).

The third dimension is the enclosing of dominant cultural manifestations in an interactive, electronic hypertext, which becomes the common frame of reference for symbolic processing from all sources and all messages. The Internet (248 million users currently, in 2000; 700 million projected by the end of 2001; 2 billion by 2007) will link individuals and groups among themselves and to the shared multimedia hypertext. This hypertext constitutes the backbone of a new culture, the culture of real virtuality, in which virtuality becomes a fundamental component

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Last, but not least, progress in scientific knowledge, and the use of science to correct its own one-sided development, are redefining the relationship between culture and nature that characterized the industrial era. A deep ecologi-



Second one, the second dimension of social change is precisely globalization, understood as the technological organizational and institutional capacity of the core components of a given system that is in economy to work as a unit in real or chosen time on a planetary scale. So, this is what we have been discussing that at a global level, you are able to interact you are able to function at a given time.

This historically new in contrast with the past forms of advanced internationalization which could not benefit from the information communication technology able to handle the current size, complexity and speed of the global system. So, I think we have had quite a lot of discussion on that, how this globalization especially enabled and aided by technolog is something unprecedented even when during 50s and 60s, there were no transportation facilities,

there were movement of people, technology and then goods, but none of that is something comparable with the kind of scale of interaction that is taking place in the contemporary times.

And the third dimension is the imposing of dominant cultural manifestation in an interactive electronic hypertext, which becomes the common frame of reference for symbolic processing of all sources and all messages, he is talking about the internet. The enormous potential of internet in virtually everything you know that how different the world is today with the advent of internet, so he gives you some statistics about the spread of internet and the how even people in the lower income countries have been able to make use of that.

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The slide contains two columns of text. The left column discusses the 'fourth axis of change' and the 'demise of the sovereign nation-state'. The right column discusses 'progress in scientific knowledge' and 'the use of science to correct its own one-sided development'. A red bracket on the left side of the slide highlights the text about the 'demise of the sovereign nation-state'. The NPTEL logo is in the top right corner. A man is visible in the bottom right corner of the frame.

2007) will link individuals and groups among themselves and to the shared multimedia hypertext. This hypertext constitutes the backbone of a new culture, the culture of real virtuality, in which virtuality becomes a fundamental component of our symbolic environment, and thus of our experience as communicating beings.

The fourth axis of change, largely a consequence of the global networks of the economy, communication, and knowledge and information, is the demise of the sovereign nation-state. Not that current nation-states will disappear in their institutional existence, but their existence as power apparatuses is profoundly transformed, as they are either bypassed or rearranged in networks of shared sovereignty formed by national governments, supranational institutions, co-national institutions (such as the European Union, NATO, or NAFTA), regional governments, local governments, and NGOs, all interacting in a negotiated process of decision making. As a result, the issue of political repre-

Last, but not least, progress in scientific knowledge, and the use of science to correct its own one-sided development, are redefining the relationship between culture and nature that characterized the industrial era. A deep ecological consciousness is permeating the human mind and affecting the way we live, produce, consume, and perceive ourselves. We are just at the beginning of a most extraordinary cultural transformation that is reversing the course of thought that has prevailed among the world's dominant groups since the Enlightenment.

This new society was produced during the last quarter of the twentieth century, through the interaction among three independent processes that happened to coincide in time: the revolution in information technology; the socioeconomic restructuring of both capitalism and statism (with different fates for these antagonistic modes of production); and the cultural social movements that emerged in the 1960s in the United States and Western Europe. While

NPTEL

And the fourth axis of change, largely a consequence of global networks and global economy, communication and knowledge and information is the demise of the sovereign nation stage. It's a very categorical statement, he is using words like demise, the death of the model nation-states. Now, sitting here, we know that it is very far-fetched argument, it is too tall a claim to say that, but especially now we are seeing that kind of a scenario where nation-states are coming back strongly, nation a kind of a more economic nationalism, a kind of a national boundaries are becoming stronger.

So, but he says that the very fundamental character of sovereign nation states has fundamentally changed. So, he talks about a series of transnational institutions, European Union, NATO and NAFTA local governments and global civil societies, a host of things that actually talk about that, which have become more important than the nation states according to Castells.

In an axis of structural change is the fundamental crisis of patriarchy, brought about by the women's insurgency and amplified by gay and lesbian social movements, challenging heterosexuality as a foundation of family. There will be other forms of family as egalitarian values diffuse by the day, not without struggle and setbacks and this again, we know that the kind of fundamental transformation happening in the realm of sexuality, the kind of emphasis or the kind of naturalness that was associated with the hetero normativity, that a man is supposed to get married to a woman and only that is natural.

So, these ideas which looked at a man and both male and female as the only natural categories, that particular argument or understanding has been very systematically demolished. We are seeing proliferation of sexual identities and then a host of alternative identity. So, these changes

have or transformation have significant impact on the ways in which our families are defined and run every day.

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precisely, globalization, understood as the technological, organizational, and institutional capacity of the core components of a given system (e.g., the economy) to work as a unit in real or chosen time on a planetary scale. This is historically new, in contrast with past forms of advanced internationalization, which could not benefit from information and communication technologies able to handle the current size, complexity, and speed, of the global system, as it has been documented by David Held et al (1999).

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foundation of family. There will be other forms of family, as egalitarian values diffuse by the day, not without struggle and setbacks. But it is difficult to imagine, at least in industrialized societies, the persistence of patriarchal families as the norm. The real issue is how, at which speed, and with which human cost, the crisis of patriarchy will extend, with its own specific forms, into other areas around the world. The crisis of patriarchy, of course, redefines sexuality, socialization, and ultimately personality formation. Because the crisis of the state and of the family, in a world dominated by markets and networks, is creating an institutional void, there are (and increasingly will be) collective affirmations of primary identity around the key themes of religion, nation, ethnicity, locality, which will tend to break up societies based on negotiated institutions, in favor of value-founded communes.

Last, but not least, progress in scientific knowledge, and the use of science to correct its own one-sided development, are redefining the relationship between culture and nature that characterized the industrial era. A deep ecological consciousness is permeating the human mind and affecting the way we live, produce, consume, and perceive ourselves. We are just at the beginning of a most extraordinary cultural transformation that is reversing the course of thought



But not the least, progress in scientific knowledge and the use of science to correct its one-sided development are defining the relationship between cultures and nature, that characterize the industrial era, a deep ecological consciousness is permeating the human mind affecting the ways we live, produce, consume, and perceive ourselves. A very important argument, because one of the most important features of modernity was that modernity promised you the absolute control over the nature through science and technology.

Because in modernity, nature was seen as a resource, and science and technology was seen as an aid for you to exploit the nature. So, the progress of human being was seen as the most important, important mission. So, again, that progress was defined in a very narrowed sense in terms of increasing your GDP, increasing your industrial productivity, increasing your income, increasing your consumers behaviour.

So later, we realized that is a very, very dangerous understanding of what it means to be progress. So, we know that there is a proliferation of ecological arguments and movements from the 1970s. Now we no longer look at the nature merely as a resource. Now we know that it is impossible for human beings to survive without nurturing nature. So, this ecological consciousness is in direct conflict with many of the taken for granted assumptions of science.

So, science and technology, we are now increasingly sceptic, a singular understanding about progress is even more sceptic, we are in a scenario where we talk about the post developmentalism, where we try to celebrate different alternative ways of existence alternative ways of development. So, a single uni-linear evolutionary model, uni-linear evolutionary model modelled after this modernization theory by a host of sociologists is no longer the most creditworthy proposition.

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this multidimensional social change induces a variety of social and cultural expressions in each specific institutional context. I propose the notion that there is some commonality in the outcome, if not in the process, at the level where new social forms are constituted—that is, in the social structure. At the roots of the new society, in all its diversity, is a new social structure, the network society.

#### The Network Society: The Social Structure of the Information Age

The new society is made up of networks. Global financial markets are built on electronic networks that process financial transactions in real time. The Internet is a network of computer networks. The electronic hypertext, linking different media in global/local connection, is made up of networks of communication—production studios, newsrooms, computerized information systems, mobile transmission units, and increasingly interactive senders and receivers.

The global economy is a network of financial transactions, production sites, markets, and labor pools, powered by money, information, and business organization. The network enterprise, as a new form of business organization, is made of networks of firms or subunits of firms organized around the performance of a business

omized by the Internet. Electronic communication systems give networks the capacity to decentralize and adapt the execution of tasks, while coordinating purpose and decision making. Therefore, flexibility can be achieved without sacrificing performance. Because of their superior performing capacity, networks, through competition, are gradually eliminating centered, hierarchical forms of organization in their specific realm of activity.

A network is a set of interconnected nodes. Networks are flexible, adaptive structures that, powered by information technology, can perform any task that has been programmed in the network. They can expand indefinitely, incorporating any new node by simply reconfiguring themselves, on the condition that these new nodes do not represent an obstacle to fulfilling key instructions in their program. For instance, all regions in the world may be linked into the global economy, but only to the point where they add value to the value-making function of this economy, by their contribution in human resources, markets, raw materials, or other components of production and distribution. If a region is not valuable to such a network, it will not be linked up; or if it ceases to be valuable, it will be switched off without the network as a



So, then he brings in the other the main argument about a networked society, a social structure of an information age. So, I mentioned earlier that Castells is widely known for his theories on networked society and argument about information age. So, he is bringing that argument here, the new society is made up of networks, global financial markets are built on electronic networks that process financial transactions in real time and he argues that the global economy is a network of financial transactions, production sites, markets and labour pools powered by money, information and business organization.

So, these points, we will make it clear when we discuss in the next class where we will talk about this argument about time and space and spaces of flows, how he looks at the spaces as spaces happening through flows, not through the places. So, his argument is that the most dominant forms of social interaction or social organizations now taking place through networks and nodes. So, this is a very radical argument. He is basically saying that the very character of society has been undergoing significant transformation.

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The global economy is a network of financial transactions, production sites, markets, and labor pools, powered by money, information, and business organization. The network enterprise, as a new form of business organization, is made of networks of firms or subunits of firms organized around the performance of a business project. Governance relies on the articulation among different levels of institutional decision making linked by information networks. And the most dynamic social movements are connected via the Internet across the city, the country, and the world.

Networks are, however, a very old form of social organization. But throughout history, networks had major advantages and a major problem. Their advantages are flexibility and adaptability, characteristics essential for managing tasks in a world as volatile and mutable as ours. The problem was the embedded inability of networks to manage complexity beyond a critical size. Networks were historically useful for personal interaction, for solidarity, for reciprocal support. But they were bad performers in mobilizing resources and focusing these resources on the execution of a given task. Large, centralized apparatuses usually outperformed networks in the conduct of war, in the exercise of power, in symbolic domination, and in the organization of

add value to the value-making function of this economy, by their contribution in human resources, markets, raw materials, or other components of production and distribution. If a region is not valuable to such a network, it will not be linked up; or if it ceases to be valuable, it will be switched off, without the network as a whole suffering major inconvenience. Naturally, networks based on alternative values also exist, and their social morphology is similar to that of dominant networks, so that social conflicts take the shape of network-based struggles to reprogram opposite networks from the outside. How? By scripting new codes (new values, for instance) in the goals organizing the performance of the network. This is why the main social struggles of the information age lie in the redefinition of cultural codes in the human mind.

The prevalence of networks in organizing social practice redefines social structure in our societies. By social structure I mean the organizational arrangements of humans in relationships of production/consumption, experience, and power, as expressed in meaningful interaction framed by culture. In the Information Age, these specific organizational arrangements are based on information networks powered by microelectronics-based information technologies (and in



So, he says that networks are however a very old form of social organization, there is nothing new about that people or communities having forms of relation through networks. But again,

these are incomparable, we cannot say that the kind of network that existed say 400 years ago or 1000 years ago is incomparable to that of today, of course, there existed networks, but they are simply not comparable. So, the problem, their advantages are flexibility and adaptability characteristics essential for managing tasks in a world as volatile and mutable as ours, the problem was embedded inability of networks to manage complexity beyond a critical size.

Networks are historically useful for personal interaction, for solidarity, for reciprocal support, but their performance was bad in mobilizing resources and focusing these resources on the execution of a given task. So, he says that traditionally, these networks of course offered a lot of flexibility, but they were not really good at performing certain things with more efficiency, because the things that facilitate the interaction between networks and nodes were not very technologically sound.

Therefore, flexibility can be achieved without sacrificing performance, because of the superior performing capacity networks through competition had gradually eliminating centred hierarchical form of organization in their specific realm of activity. So, a network is a set of interconnected nodes, we understand that, I hope you can visualize a picture or an imaginary about a network, where you talk about electronic network or network of neurons or atomic network, you understand it as an interconnected node, networks are flexible, adaptive structures that are powered by Information Technology which can perform any task that has been programmed in the network.

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IMAGE OF NETWORKS OF ITEMS OF SIMILARITY OR ITEMS organized around the performance of a business project. Governance relies on the articulation among different levels of institutional decision making linked by information networks. And the most dynamic social movements are connected via the Internet across the city, the country, and the world.

Networks are, however, a very old form of social organization. But throughout history, networks had major advantages and a major problem. Their advantages are flexibility and adaptability, characteristics essential for managing tasks in a world as volatile and mutable as ours. The problem was the embedded inability of networks to manage complexity beyond a critical size. Networks were historically useful for personal interaction, for solidarity, for reciprocal support. But they were bad performers in mobilizing resources and focusing these resources on the execution of a given task. Large, centralized apparatuses usually outperformed networks in the conduct of war, in the exercise of power, in symbolic domination, and in the organization of standardized, mass production. Yet this substantial limitation of networks' competitive capacity was overcome with the development of new information/communication technologies, epit-

not be linked up; or if it ceases to be valuable, it will be switched off, without the network as a whole suffering major inconvenience. Naturally, networks based on alternative values also exist, and their social morphology is similar to that of dominant networks, so that social conflicts take the shape of network-based struggles to reprogram opposite networks from the outside. How? By scripting new codes (new values, for instance) in the goals organizing the performance of the network. This is why the main social struggles of the information age lie in the redefinition of cultural codes in the human mind.

The prevalence of networks in organizing social practice redefines social structure in our societies. By social structure I mean the organizational arrangements of humans in relationships of production/consumption, experience, and power, as expressed in meaningful interaction framed by culture. In the Information Age, these specific organizational arrangements are based on information networks powered by microelectronics-based information technologies (and in the near future by biologically based information technologies). Under the conditions of this new, emerging social structure, sociology must address several conceptual and methodological issues in



So, he argues that in the new society, a society that has come into picture after the 2000 or in the new millennium is characterized by this network and he is making a very tall claim that the very structure or of society has been transformed. The prevalence of networks in organizing social practices redefined social structure in our society, by social structure I mean, organizational arrangements of humans in relationships of production/ consumption, experience and power as expressed in meaningful interaction framed by culture. It is a very useful definition for social structure, the term has been defined in so many different ways, but you can look at it as very important definition provided by Manuel Castells.

By social structure, I mean organizational arrangements of humans in relationship to production/ consumption that is related to economic activity, experience and power as expressed in the meaningful interaction framework cultural. In information age, these specific

organizational arrangements are based on information networks powered by micro-electronics-based information technologies and in the near future by biologically based information technology.

So, he argues that the very nature of social organization has been fundamentally transformed, if earlier in the in pre global era, if social organization was based given fact the social interaction take place in a given space or in a given place. So, now, in a modern, global society, you do not need to be there in the same place, you do not need to be in the same geography, you do not need to be in the given physical place, you can be anywhere in the world, but you are able to organize your activity in the same efficiency, even more efficiency and thereby you are able to get the work done at a global level. So, here fundamental transformation is happening to the whole notion of space and place as well as that of time.

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order to be equipped to analyze core processes of social organization and social practice.

### Theorizing Social Structure as Interactive Information Networks



The study of social networks is well established in sociological research, spearheaded in contemporary American sociology by Wellman (e.g., 1999), Fischer (e.g., 1992), and Granovetter (e.g., 1985). There is also an international association for the study of social networks, which constitutes a fruitful milieu of research. It can provide concepts and methods that will foster understanding of social networks as specific forms of organization and relationship, including electronic communication networks. Yet, while building on this tradition, I advance the notion that twenty-first-century sociology will have to expand the network-based perspective to the analysis of the entire social structure, in accordance with current trends of social evolution. This implies more than analyzing social networks. It will require reconceptualizing many social processes and institutions as expressions of networks, moving away from conceptual frameworks organized around the notion of centers and hierarchies.

For the sake of communication, I will use two illustrations to make my case, taking them from two different and very traditional sociological

management and labor and the ephemeral character of project-based, industrial organizations require a new conceptual apparatus, focusing on networked relationships rather than on vertical hierarchies. In this perspective, I propose to conceptualize the new occupational structure around the interaction among three dimensions of production relationships: value making, relation making, and decision making.

For value making, in an information-based production process, we may differentiate various structural positions: the commanders (or strategists), the researchers, the designers, the integrators, the operators, and the human terminals. Relation making defines another set of positions: the networkers, the networked, and the switched-off. And the relative positioning in decision making differentiates among the deciders, the participants, and the executors. The three dimensions are analytically independent. Thus, the empirical observation of the various arrangements among different positions in the three dimensions built around the performance of a given project may yield some clues on the emergence of new social relationships of production, at the source of new social structure.

A second example: the transformation of spatial structure, a classic theme of urban sociology. With the diffusion of electronically based com-



So, he further explains theorizing social structure as interactive information networks. So, he looks at some of the theories on networks. Yet while building this tradition, I advanced the notion that twenty first century sociology will have to expand the network-based perspective to the analysis of the entire social structure in accordance with the current trend of social evolution.

This implies more than analysing social networks, it will require re-conceptualizing many social processes and dimensions as expressions of networks moving away from conceptual framework organized around notions of centres and hierarchies. So, if centres and hierarchies were the basis on which we visualize our society, in the era of modernity, now that model is no longer helpful rather, you will have to think of alternative models.

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For the sake of communication, I will use two illustrations to make my case, taking them from two different and very traditional sociological fields: industrial sociology and urban sociology. I will then draw some general theoretical implications from this change of perspective.

The prevailing form of business organization emerging in advanced societies and diffusing throughout the global economy is the network enterprise, which I define, in sociological terms, as the specific form of enterprise whose system of means is constituted by the intersection of segments of autonomous systems of goals. It follows a complete transformation of relationships of production and management, and thus of the occupational structure on which social structure is largely based. How can we conceptualize the role of producers of information in their differential position along an interactive network?

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A second example: the transformation of spatial structure, a classic theme of urban sociology. With the diffusion of electronically based communication technologies, territorial contiguity ceases to be a precondition for the simultaneity of interactive social practices. But "the death of distance" is not the end of the spatial dimension of society. First, the "space of places," based in meaningful physical proximity, continues to be a major source of experience and function for many people and in many circumstances. And second, distant, interactive communication does not eliminate space; it transforms it. A new form of space emerges—"the space of flows." It is made of electronic circuits and information systems, but it is also made of territories, physical places, whose functional or symbolic meaning depends on their connection to a network, rather than on its specific characteristics as



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So, the very nature of business organization is changing and he gives the example, he elaborates it on the basis of 3 dimensions of production relations, that is value making, relationship, relations making and decision-making process as a very important process involved in the modern business activity and these are very different from that of the conventional way in which we understand a process of production. I do not think that I am going into that particular example, you can read that in detail.

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A second example, the transformation of spatial structures, a classical theme of urban sociology. So, this is something important because he is talking about his own theoretical arguments. With the diffusion of electronically based communication technologies, territorial contiguity, ceases to be a precondition for the simultaneity of interactive social practices. So, you do not need to be there in the same place in order to act to it. Maybe the way I can put it in a very simple way.

You do not need to be together. The simultaneity is ensured, even if you are miles apart. So, you are the way in which you organize with each other, it can take place, irrespective of your place where you actually sit where you are seated, where you actually physically belong it hardly matter, but you will be able to interact with each other. But the depth of distance is not the end of the spatial dimension of society and this is a very crucial point which we will explain in detail in the coming class.

First, this space of place based on meaningful physical proximity continues to be a major source of experience and function for many people and in many circumstances. So, Castells makes a distinction between spaces of places and spaces of flows; we will elaborate it later. So, in conventional societies, in traditional societies, this space of places was very important because everything happened in a particular place. I hope, we have discussed it several times, especially when we discussed Anthony Giddens.

In a traditional society, in an agricultural society, if a social event has to take place, if a social interaction has to take place, it has to take place in a given place where everybody is present, you cannot imagine something happening in that society from things that are happening some 100 kilometres away. So, things happen in a given time in a given place only when people are present when something happened. So, that kind of spaces of places, spaces of places Castells argues is still relevant, because that is how that is from where people derive their notions of experiences and then the kind of very personal direct experiences.

And second distance interacting communications does not eliminate space, it transforms it. A new form of space emerges, the spaces of flows. I will elaborate it later, maybe in the very next class we are going to discuss this particular term. So, this argument follows from this larger argument about the transformation from the spaces of places to spaces of flows.

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in the worldwide geography of management of wealth and information. For such cities (New York, London, Tokyo, Paris, or São Paulo) we already had the descriptive notion of "world city," proposed 20 years ago. The global city, in the strict analytical sense, is not any particular city. And empirically it extends to spaces located in many cities around the world, some extra-large, others large, and still others not so large. The global city is made of territories that in different cities ensure the management of the global economy and of global information networks. Thus, a few blocks in Manhattan are part of the global city, but most of New York, in fact most of Manhattan, is very local, not global. These globalized segments of Manhattan are linked to other spaces around the world, which are connected in networks of global management, while being loosely connected to their territorial hinterlands.

So the global city is a network of noncontiguous territories, reunited around the task of managing globalism by networks that transcend locality (Graham and Simon 2000). From this theoretical perspective we can develop models to analyze the new spatial forms constituted around interterritorial networks, and then examine their differential relationship to their surrounding, local environments. Thus, it is the

terms, as proposed years ago by computer scientist and Internet entrepreneur Bob Metcalfe, the value of a net increases as the square of the number of nodes on the net. (The precise formula is  $V = n^{(n-1)}$ , where  $V$  is the value of the network and  $n$  the number of nodes). Thus, a networked social structure is an open system that can expand indefinitely, as long as the networks included in the meta-network are compatible.

The issue arises, then, of the contradictions among networks, which lead to conflicts and social change. In fact, network theory could help solve one of the greatest difficulties in the explanation of social change. The history of sociology is dominated by the juxtaposition of and lack of integration between the analysis of social structure and the analysis of social change. Structuralism and subjectivism have rarely been integrated in the same theoretical framework. A perspective based on interactive networks as the common basis for social structure and social action may yield some theoretical results by ensuring the communication, within the same logic, between these two planes of human practice. A social structure made up of networks is an interactive system, constantly on the move. Social actors constituted as networks add and subtract components, which bring with them into the acting network new values and interests



Now, then he gives the example of a global city in the strict analytical sense is not any particular city and empirically takes him to spaces located in many cities around the world and some extra-large, other large and still others not so large, the global cities made of territories, that in different cities ensure the management of a global economy and global information networks.

So, he elaborates, few blocks in Manhattan are part of the global city, but most of New York. In fact, most of Manhattan is very local, not global. So, he is talking about how even in a given city, how certain part is not connected with the larger global processes.

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locality (Graham and Simon 2000). From this theoretical perspective we can develop models to analyze the new spatial forms constituted around interterritorial networks, and then examine their differential relationship to their surrounding, local environments. Thus, it is the connection between local and global, rather than the "end of geography" in the age of globalization, that becomes the appropriate perspective for the new urban sociology (Borja and Castells 1997). Networks of discontinuous places in interaction with a diverse range of localities are the components of the new sociospatial structure. The central analytical question then becomes how **shared social** meaning is produced out of disjointed spatial units reunited in a purely instrumental, global logic (Castells 2006b). By redefining spatial structure on the basis of a networking logic, we open up a new frontier for one of the oldest sociological traditions, urban sociology.

The analysis of social structures as a multidimensional, evolving system of dynamic networks may help explain social evolution in the Information Age. Indeed, networks are dynamic, self-evolving structures, which, powered by information technology and communicating with the same digital language, can grow, and include all social expressions compatible with

logic, between these two planes of human practice. A social structure made up of networks is an interactive system, constantly on the move. Social actors constituted as networks add and subtract components, which bring with them into the acting network new values and interests defined in terms of their matrix in the changing social structure. Structures make practices, and practices enact and change structures following the same networking logic and dealing in similar terms with the programming and reprogramming of networks' goals, by setting up these goals on the basis of cultural codes.

A theory based on the concept of a social structure built on dynamic networks breaks with the two reductionist metaphors on which sociology was based historically: the mechanical view of society as a machine made up of institutions and organizations; and the organicist view of society as a body, integrated with organs with specific bodily functions. Instead, if we need a new metaphor, the sociology of the network society would be built on the self-generating processes discovered by molecular biology, as cells evolve and develop through their interaction in a network of networks, within the body and with their environment. Interactive networks are the components of social structure, as well as the agencies of social change. The soci-



So, the global city is a network of non-contiguous territories reunited around the task of managing globalism by networks that transcend locality. Thus, it is the connection between local and global, rather than the end of geography in the age of globalization, that becomes the appropriate perspective for the new urban sociology.

So, we discussed it when we discussed Saskia Sassen yesterday, how these new ideas about space emerge, especially with respect to urban geography. The central analytical question then

becomes how shared social meaning is produced out of disjointed spatial units reunited in purely instrumental global logic. Anyway, I think we can leave it here.

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ology of the network society may be able to bridge structure and practice in the same analytical grasp.

**A New Methodology?**

The renewal of the study of society cannot proceed just on theoretical grounds. Sociology is an empirical science, within all the limits inherent to the constraints of observation under non-experimental conditions. Thus, new issues, new concepts, new perspectives require new tools. The emergence of interactive information networks as the backbone of social structure makes even more acute the need to take up the greatest methodological challenge for empirical research in sociology. While most of our analytical tools are based on linear relationships, most social phenomena—even more so in the network society—are characterized by nonlinear dynamics. But in the last two decades, we have witnessed the development of numerous

of young sociologists—those who will analyze the network society.

In doing so, they will be fortunate enough to have access to a huge pool of information via the Internet. Given knowledge of languages (or automated translation programs), access to global sources may liberate sociology from the embedded ethnocentrism of its observation. Each study may be comparative or cross-cultural in its approach, by contrasting observation generated *ex novo* in a particular study to the accumulated knowledge on the matter from global sources. Naturally, critique of sources as well as problems of methodological integration of diverse data will be necessary requisites for use of this wealth of information. The practice of meta-analysis, in full development in other sciences, particularly economics, may become a standard tool of sociological research. This would also require proper training and methodological guidance for sociologists to benefit from



So, he fundamentally argued, to reiterate the point that the social structure has changed, changed and if the social structure is changed, then it requires a new epistemological orientation from the discipline to make sense of that, the relation between epistemology and ontology or epistemology and methodology.

So, Castells is of very strong opinion. What does it mean to be society? What is social structure? This has fundamentally changed from what we understood from the period of modernity, very rigid hierarchies and then those questions about centre periphery hierarchies, these has changed and what we are seeing is a kind of a more networked society and without any hesitation, I would say that it is a very tall claim, it is a very far-fetched claim to say that the very social structure has changed from that of traditional society from say modern society to a kind of industrial society.

But Castells is making that argument very strongly because that is how you provoke new thinking. That is how you provoke people to think in that direction. So, some amount of exaggeration, some amount of appropriation they are all in order. So, following from that argument, he talks about new methodology.

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est methodological challenge for empirical research in sociology. While most of our analytical tools are based on linear relationships, most social phenomena—even more so in the network society—are characterized by nonlinear dynamics. But in the last two decades, we have witnessed the development of numerous research tools able to deal with nonlinear relationships.

On one hand, we have an expanding field of the new mathematics of complexity based on notions such as fractals, emergent properties, autopoietic networks, and the like (Capra 1996). Most of these mathematical discoveries remain confined to formal exercises with slight relationship to empirical research. But they are tools ready to be used, transformed, and perfected by able researchers with both the knowledge of the tools and the substantive knowledge to make sense of this formal language.

On the other hand, enhanced power of computers, and new, flexible computer programming languages, enable us to handle the complexity of an interactive network structure in precise terms. Computer-based system analysis of dynamic networks may constitute a fruitful approach through which observation and theory can be reconciled without excessive social reductionism. Simulation models in the social sciences got off to a bad start in the 1960s

diverse data will be necessary requisites for use of this wealth of information. The practice of meta-analysis, in full development in other sciences, particularly economics, may become a standard tool of sociological research. This would also require proper training and methodological guidance for sociologists to benefit from expanded possibilities of information without being overwhelmed by it.

Overall, sociology should, and will, overcome the sterile, artificial opposition between quantitative and qualitative research, and between theory and empirical study. In the perspective of computational literacy, and with the formal integration of observations in a theory that conceives social structure as a network of interactive networks, it does not really matter what comes from statistics or from ethnography. What matters is the accuracy of the observation, and its meaning. Thus, formal models scripted in the computer programs must be theoretically informed, yet able to be given information apt to answer the questions raised in the theory.

The sociology of the network society will develop through synergy among relevant theorizing, computational literacy, and sociological imagination.

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Because if your epistemology changes, if your ontology changes and then your epistemology changes, then that will necessarily get reflected in the changes in your methodology as well. Because with your methodologies you are trying basically to understand what certain thing is, you are trying to use certain methods to make senses of that. So, if that very thing itself is changed, if your disciplinary orientation, your knowledge system about a particular subject matter change, then it definitely needs orientation in a way in which you can employ various methods.

So, he talks about a new methodology, sociology should think about new methodologies and his argument is emphatic. So, sociologists and empirical science and then he gives that larger argument. So, if the society has become a new society where networks is constituting the social structure, then you require a discipline which has a methodological orientation towards capturing these features of the network. Because, network in the conventional system was not the mainstay of sociology, it was only on the periphery.

So, now his argument is that if the social structure has changed significantly into that of this network, then your methodology also needs to reorient towards that. So, he talks about a series of things, on the other hand enhanced power of computers and new flexible computer programming languages enable us to handle the complexity of interactive network structures in precise terms. So, a host of new technologies is required, new methodologies are required, new methods are required, he would say that computer-based system analysis and then simulation models and network analysis and a host of other new types of methods are required.

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On the other hand, enhanced power of computers, and new, flexible computer programming languages, enable us to handle the complexity of an interactive network structure in precise terms. Computer-based system analysis of dynamic networks may constitute a fruitful approach through which observation and theory can be reconciled without excessive social reductionism. Simulation models in the social sciences got off to a bad start in the 1960s because their underlying theories were utterly simplistic, and computer programs were technically constrained by their set of rigid assumptions. But new computing capacity, in dynamic interaction of alternative assumptions processed at high speed, may change everything—as is already happening in biological research. In this sense, computational literacy (that is, knowing how to interact with computers, rather than just run statistical programs) may be a fundamental learning requirement for the current generation

computational literacy, and with the formal integration of observations in a theory that conceives social structure as a network of interactive networks, it does not really matter what comes from statistics or from ethnography. What matters is the accuracy of the observation, and its meaning. Thus, formal models scripted in the computer programs must be theoretically informed, yet able to be given information apt to answer the questions raised in the theory.

The sociology of the network society will develop through synergy among relevant theorizing, computational literacy, and sociological imagination.

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On the other hand, enhanced power of computers, and new, flexible computer programming languages, enable us to handle the complexity of an interactive network structure in precise

each study may be comparative or cross-cultural in its approach, by contrasting observation generated ex novo in a particular study to the accumulated knowledge on the matter from global sources. Naturally, critique of sources as well as problems of methodological integration of diverse data will be necessary requisites for use of this wealth of information. The practice of meta-analysis, in full development in other sciences, particularly economics, may become a standard tool of sociological research. This would also require proper training and methodological guidance for sociologists to benefit from expanded possibilities of information without being overwhelmed by it.

Overall, sociology should, and will, overcome the sterile, artificial opposition between quantitative and qualitative research, and between theory and empirical study. In the perspective of computational literacy, and with the formal integration of observations in a theory that conceives social structure as a network of interactive networks, it does not really matter what comes from statistics or from ethnography. What matters is the accuracy of the observation, and its meaning. Thus, formal models scripted in the computer programs must be theoretically informed, yet able to be given information apt to answer the questions raised in the theory.



So, finally, he argues that overall sociology should and will overcome the sterile artificial opposition between quantitative and qualitative research and between theory and empirical study, again, it is a very important argument because you usually make the distinction between quantitative study and qualitative study.

So, in quantitative study, you use more statistical tools, you use surveys, you use questionnaires you tend to quantify your data into numbers, whereas in qualitative study, you do not get into this number business, rather you use mostly anthropological methodology, ethnography and then participant observation, you tend to elaborate, you do ethnographic research. So, he argues that distinction will slowly disappear and also the distinction between the theory and empirical study.

So, he foresees, so he very strongly argues that sociology as a discipline must change in order to stay relevant, because the society which it wants to study is undergoing a systematic or significant transformation and as I mentioned, these arguments are emerging from his larger argument about the fundamental changes in social structure and then society. So, that is what we are going to discuss in the coming class. So, we will stop here, and then meet for the next class. Thank you.