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the contours of the network society

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This article identifies contemporary society as a network society made possible by new information and communication technologies which are both a necessary condition for, and inextractable dimension of that society, and pose complex results and challenges. The prevalence of networks means that we have entered a new technological paradigm and new form of organizational structure having shifted from vertical to more flexible and adaptable networking forms of activity in economy, society, politics and culture. Historical problems of networks are overcome by the new network technologies. In the network society, the integration of the core of global financial activities works through causal interactions and the ability to assess and change the value of any security in the global market. This is only made possible via telecommunications and powerful information systems which assess risks and provide alternatives. Characteristics and consequences of the new economy are outlined as are patterns of governmental power. Current processes of globalization have diminished the capacity of the nation state to control the processes of cultural, economic, political and social dimensions and the network state is emerging in a world of different kinds of networks of which governmental networks is one. The main conclusion is that the network society of the contemporary, or post-industrial, age is centrally organized around new information communication technologies which have enabled, rather than technologically determined, extraordinary changes in the social structure.

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What kind of society do we have worldwide? Is it really a new society and why so? First of all, whether we know if it is new or not, does not preclude that we can still analyse what is being new or not new. In that sense the challenge about the novelty is different from the challenge about the substance of the analysis of what is our world.

But let us go directly to the question about the novelty, mixing it with the analysis. I do think we live in a new society already, not in the future but right now. I call that the network society, not information society for the reasons that I hope will become apparent soon. What is new about this society is something very simple to start with – the technology. The technology is new. It does not mean that the technology produces society. Technology is a part of the society. It is one inextractable dimension of the society at large.

The fact that we have new technologies allows possibilities of social and economic organization that did not exist before. In other words, the new information technologies are not the cause of the social transformation, but without these technologies the processes that lead to social transformation could not happen. Hence, it is a different argument this new technology is not a sufficient but a necessary condition for the kind of society we live in, the network society.

Everybody, not just experts and scientists, can see the kind of new technological infrastructure we have. It is based on computers, network technologies, telecommunications and increasingly based on genetic engineering and development of new nanotechnologies. All these are extraordinary transformations for good or for bad – I am not judging on the value – and they provide an infrastructural basis completely different from what we have been living with only 20–25 years ago.

The current scene is similar to the moment of industrial revolution after the first steam engine appeared. Someone could have said that what is new after all? We can always do it with the wind. This sceptical attitude is simply intellectually irrelevant. However, what we cannot say is that because we have this kind of a new society, all the problems will be solved and everything is going to be wonderful. We have to recognize the novelty and show the complexity of the results, as well as the challenges that these technologies pose to society and to humans. We now have extraordinarily powerful technological means, which to some extent amplify the power of the mind as energy amplifies the power of our physical force.

In fact, we can devastate our planet, societies and ourselves as well as make our planet a much better place and us much better human beings. In that sense the technology increases our contradictions, forcing us to face who we really are as a species on this planet. Therefore, the novelty of the technology is but a totally open page in terms of what the technology means for our society, civilization, and for the destiny of our planet.

The prevalence of networks

What is new in this society is the prevalence of networks. It means that we have entered not only a new technological paradigm, but a new form of organizational structure for everything we do. We have shifted from the vertically organized, standardized, rationally structured, hierarchically structured forms of activity to networking forms of activity. A network is simply a set of interconnected nodes. Networks have always existed, so this is not a new form of organization. Networks have now generalized and are generalizing their presence in economy, society, politics and culture because of the new technologies. Here is the conversion between social change and technological change.

Networks have always had an extraordinary capacity and an extraordinary problem in becoming forms for implementing human activity. The capacity was and is their flexibility and their adaptability. Networks can involve, incorporate everything that they need and discard everything they don't need for the purpose of

the network. Network is by definition an instrument of cooperation and competition with other networks and cooperation within the network, in which every node needs the other node for the function of the network.

Think of the biological process rather than of the mechanical process that we have been accustomed to use as a metaphor for our society. Networks therefore have this adaptability and flexibility, capacity to organize the resources and organize activity. While reacting to the environment and transforming themselves rather than clashing against other structures or against other organizations, they are much more powerful organizations in any competition. Suppose you have a network company and a vertically organized company, and let them be for a few months or years. The network company eliminates the vertically organized company. This is happening all over. It is the same thing in politics and in social organizations.

The problem of networks, historically, has been that they had and still have the built-in difficulty to focus resources, to keep the unity of the project in accomplishing their task. In other words, networks are very good at decentralizing activity in a flexible manner, but are not very good at coordinating, centralizing the decision making and allocating resources to one particular purpose. Beyond certain complexity, the task of managing is another requirement – the task of managing so many different components and making all work together towards a common purpose. This task proves practically impossible to accomplish beyond a certain level of complexity. That is why networks throughout the history have been perfect for interpersonal relationships, family, friendship and communities, but terrible in accomplishing centralizing tasks such as state domination, production, business of all kinds and conquest. For all of these, although they were instances of interaction, networks were not the best organization. The centralized, hierarchical and vertical bureaucracy became a much more powerful instrument to accomplish decision making and centralized tasks.

New network technologies are different – they allow us, at the same time, to centralize execution and coordinate the decision making, because networks with new information and communication technologies are able to interact causally, to adjust in real time and to manage all degrees of complexity within the logic of the network.

The new economy

The global financial market illustrates the functioning of the network society. Global capital has existed for a long time. But the integration of the core of financial activities in a market that is run by the minute or by the second, worldwide, is new. It works through causal interactions, being able to assess values, to change the value of any security in the global market. This is only possible now because of telecommunications, but much more important than that, because of very powerful information systems in which the highly developed mathematical models are able to assess risks and are able to provide alternatives in fractions of seconds, through very powerful, high speed computers.

I am not saying it is good or bad, but this is a completely new structure, which is transformed on the basis of networks. The new economy is fundamentally defined by three characteristics and it has two major consequences.

First, it is an economy in which value generation, productivity and competitiveness are essentially dependent on knowledge and information. Knowledge and information have always been important in any economy or society. But what is new again here is the technology. Knowledge and information can be introduced in a technological system to create a positive feedback loop of knowledge and information, transforming it into a virtuous circle that expands by itself. We are finally observing the famous productivity dividend that was assumed to happen with any major technological revolution. It has taken about twenty years – as is the case

in all technological revolutions – between new technologies, new innovations and the impacts of these on the economy.

At this point, the productivity of the US economy is growing at between 3.5 and 4% per year, which is twice as much as in the golden years of the 1960s when it was growing at 2%, and four times the sluggish performance of the economy between 1975 and 1995.

To recapitulate the first point, in the new economy productivity and competitiveness are increasingly based on knowledge and information and the capacity of using information technology to feedback on knowledge and information.

Second, it is a global economy. The global economy does not mean that the whole planet has the same economy. It means that key activities like the global financial market are organized in multinational ancillary networks. To a large extent, the production of services as well as manufacturing is becoming globalized, and also science, technology and trade, all these core activities, are being globalized in the sense that they have the capacity to work as a unit in real time or chosen time on a planetary scale. This is the global economy. Most jobs are not global and most activities remain local, not only national but local. But still we all depend on some key economic activities, which are organized globally on the planet.

Third, the new economy is a network economy. It means that it is an economy based not on firms, not on governments, not on states, nor on companies. It is organized on networks of firms, of segments of firms, segments of governments and segments of the public sector. The networks are the unit. We observe at the same time the large concentration of economic property around the world. There are large megamergers between different companies. But the operating unit is not the multinational company. The operating unit is the network that is organized in a particular business project to implement the particular strategic decision. In that sense it is a much more flexible economy that can allocate resources, move around and transform itself.

There are two major consequences of this economy.

First, in terms of labour relationships, this flexibility is eliminating what was the core of the industrial relation system and industrial society, ie the stable, long term employment for the large majority of the population.

We are not going to be in an era of unemployment. As you know, it is one of the myths that this society creates unemployment. There is unemployment in Europe for institutional reasons. The societies that have the most advanced technological systems, like the USA and Japan, have very low unemployment. The USA, which has seriously adapted to the new economy, currently has an unemployment rate of 4.2%, the lowest for thirty years. In July 1999, 310 100 new jobs were created in the USA, and this is net job creation. Most of these jobs are of a higher level than the jobs that were eliminated.

We do not have much unemployment in general but we have as part of the new economy a complete transformation of the system of work, in which more and more flexible work arrangements are the rule rather than the exception. This may have serious consequences for many people who do not necessarily think this is a positive development, but it is an unstoppable development.

The second consequence is very important but has not been discussed openly in Europe. It is the transformation of the calculation system for performance in this economy. Namely, what really gives and takes out money from companies that are the actors of today, is the performance of the financial market. What the company does is not captured as sales of the company. The most important is the valuation of the stocks of the company in the financial market. That is where the real money is, in the unreal financial market. One can say that it is paper money – but it is paper money if you want to keep it on paper.

Let us take an example. At this point Amazon.com is valued about \$23 billion in the stock market. The value of all the Russian companies valued in the stock market is about \$12 billion. In other words, Amazon's market capitalization value is twice as

valuable as the entire Russian economy. Whether it is unreal depends. If the shareholders of Amazon decide to sell their shares, cash them to billions of dollars and buy the whole Russian stock, they can do it. And then the Russian stock will go up at least twice as much in value. Any time you want to cash out, you can cash out and buy a tropical island or a valued company. And that is in fact what people are doing.

Most of the value is being realized in the financial market. That is why the value of the financial market at this point is more or less equivalent to something like 14 times the global GDP. There is a striking disparity between the so-called real output and the value of the financial market.

How do you make money on the financial market if not through profit. It is through the valuation of your stocks and bonds or securities in general terms. It is the valuation of securities, which makes money in the financial market. All the internet companies are having extraordinary increases in value in the financial market. A month ago they crashed but they are still about 1500% higher than they were last year.

But most of these companies do not make profits. So what is being valued in terms of the investors' attitude, is the potential of the company and of the industry, what is going to be the value of this company in ten years or in ten minutes, when the investors want to take the money out.

Are we completely de-linking profitability from value? Not necessarily. They have a connection. But it is not the automatic connection, which means that the performance in the new economy, the capitalism economy, is linked not so much to the development of profit as to the development of increasing value which includes profit as one of the elements, as one of the considerations but not the overarching one.

I could go on in different domains of the society. I will just add one example of the completely different system in order to exemplify my analysis in terms of the deep transformation concerning networks as a fundamental transformation.

..... The patterns of governmental power

Politics, and particularly the government and the state, are going through profound changes. The current processes of globalization, at many levels, have observably diminished, if not complete cancelled, the capacity of the nation state to control the processes of economic, cultural, political and social dimensions.

I do not join the group of people who say that therefore the nation state will disappear. No, nation states will not disappear. We do not have any indicators that will show that. However, they are transforming themselves deeply in order to survive. They are proceeding along two different lines: first, they are creating associations of nation states that share sovereignty, that is, give up sovereignty as individual states but share the capacity to influence the global networks by getting together in conational, supranational and international institutions. The case is particularly strong in the European Union. Finland is not Finland anymore. Finland is Finland and a node in the European Union system. In addition, NATO, the International Monetary Fund, and all of the United Nations agencies, are in fact the depositories of the capacity of shared intervention of nation states. On the other hand, nation states are also decentralizing power to the local and regional level in an effort to regain legitimacy vis-à-vis their citizens.

Ultimately, what has already emerged in Europe and is emerging in other areas of the world is a new form of the state, which I call the network state, not simply because I am obsessed with networks but because I observe that it is a network. It is a network made of nation states and of the relationships between the nation states and conational, supranational institutions, and lower levels like regional and local governments. In addition there are the non-governmental organizations. I call them neo-governmental organizations because most of them are subsidized by

government in one way or the other. In fact they are a part of this new system of highly decentralized, highly permeable political decision making structure. This is not the end of the state. We are not in a world of pure global networks, but we are in a world of different kinds of networks of which the governmental network is one.

Information as the foundation of societies

We should abandon the notion of information society per se because it is ambiguous. It does not capture the essence of what is happening. If we say information technology society we are much closer to what is happening. On the other hand, it would imply technological determinism, which would assume that information technology determines society. All historical societies have been information societies in the sense that they have been based – to some extent – on information, on systems of communication of symbols. The Scholastic Europe in the Middle Ages was a society based on religious symbols and on the relationship between humans and God.

I would say we have to emphasize, on the one hand, the extraordinary changes that are made possible by the new information and communication technologies. On the other hand, we should develop a more specific analysis of the kind of social structure that is emerging. Finally, we should start using substantive terms such as network society rather than descriptive terms like information age. There are reasons for sustaining the dividing historical line between what we call the industrial age and the contemporary age, that some people call post-industrial, but that is – in the final analysis – centrally organized around new information communication technologies.

Questions and answers

Pentti Malaska (Finland Futures Research Centre): I would like to focus attention on one point, which I understand is a basic idea in your thinking. You argue that we are already in a new society, and you call that a network society. This society has its own new kind of rationale in the economy and in society. At the same time there are still the old way of doing things, vertical organizations, not networking. This rationale is functioning at the same time when this network thinking is emerging. So could we think that we are not yet in a mature network society but the network society is emerging and growing, and at the same time the old ‘industrial society’ is diminishing its meaning and its importance in what is happening and what will become observed.

Manuel Castells: You are absolutely right. The old periods of historical transition have a curious and complex mixture of elements of the pre-existing elements of structure, and elements of the newest structure. Networks are by competition liquidating the oldest structures. In other words, any organization that does not become a network could only resist competition by sheer force, by physical force. We are observing these in the most obvious way in the business world. In the business world, if one company sticks to the traditional ways of vertical divisions and another company that has the ability to bring together all possible resources in networks, this second company simply eliminates the the first one.

For example, let us look at the computer industry: Companies like Compaq, still the largest producer of PCs in the world, and companies like DELL, which takes 30% of its orders through arrangements online. DELL is simply phasing out Compaq through competition, until Compaq will ultimately adapt the networking strategy, which it is already doing.

How things are in the business world is very clear. If we take any other domain of activity, social movement for instance, it is also happening in that way. Look at the extraordinarily interesting fight these days in China between the Communist Party

and the Falun Gong. I can see already, and this is not a prediction but an observation, that it is impossible to stop people from practising their morning exercises. There is no communist bureaucracy that can control such things. That is why the party is speaking harshly but actually is being very soft in fact in terms of their repression. They are not treating the Falun Gong the way they treated their students. The students were in a relatively traditional form of political opposition, going to a particular place, demonstrating, etc. Falun Gong is pervasive throughout this society. I am not saying that this particular spiritual group will be the new dominant structure of China. I am just saying that the kind of social activism or social opposition represented by this type of group or network is much more powerful, ultimately, than other forms of traditional political opposition, which clearly are not able to challenge the communist party.

Pentti Malaska: Yes, I think this is very important indeed. The lesson from these observations seems to be too difficult to learn to many people and to many decision makers today, even in Finland or in other countries. They still prefer to cling to old kinds of thinking and we may maintain what we know and we are accustomed to it. How fast do you think these changes will occur when competition between the networking activities and rationale and between the old-fashioned rationale takes place? And will the changes be fast or will they emerge slowly?

Manuel Castells: They emerged slowly 20 years ago. What was happening then is now accelerating extraordinarily these days. Let us look at an example. Let us take one big company that still is changing but was for a long time the symbol of the industrial age – General Motors. And let's compare it with Cisco Systems, which is a symbol of new flexibility these days.

Cisco Systems produces an extraordinary number of routers and switches but does not have any factory. It only has a website. Through the website the engineers organize the transaction between customers and suppliers to be arranged, through information systems. 80% of the transactions mediated and built by Cisco Systems happen without any intervention of the engineer, only through arrangements on the website. Cisco Systems began 14 years ago with the loan of \$2 million. Today it is valued at \$180 billion, which is four times the total market value of General Motors.

This is what I am saying: the changes are accelerating at an extraordinary speed. History never changes because people realize where the opportunities are. History changes when governments, companies, people see that they have no other option. It is not a heroic process of Promethean discovery. It is a process of being scared to death and running for their lives. That is what the European Union is. What is the EU? It is not a great European project where we all are kissing each other, wanting to be European forever. It is what I call the Brussels cartel. It is the bonding together of the governments in Europe, trying not to be colonized by either the Asians or the Americans. That is what it is and this creates a network out of pure fear.