

Informational Societies

INFORMATIONAL SOCIETIES

Understanding the Third Industrial Revolution

Edited by Erkki Karvonen



Electronic publication
ISBN 951-44-5472-3

COPYRIGHT Tampere University Press, 2001

DISTRIBUTOR TAJU, Tampere University Sales Office
P.O. Box 617, FIN-33101 Tampere, Finland
Tel. + 358 3 215 6055
Fax + 358 3 215 7685
Email: taju@uta.fi
<http://granum.uta.fi>

LAYOUT BY Terhi Malmi

THE COVER PICTURE WAS CREATED BY
Erkki Karvonen with ChaosPro fractal generator
COVER LAYOUT BY Terhi Malmi

ISBN 951-44-5132-5

Tampereen Yliopistopaino
Juvenes Print Oy, 2001

Contents

Contributors	7
Preface	9

PART ONE: THEORETICAL PERSPECTIVES

The Emergence of 'Information Society' as a Major Social Scientific Research Programme ANTTI KASVIO	19
Are we living in the Information Society or in the Knowledge Society? A Deeper Look at the Concepts of Information and Knowledge ERKKI KARVONEN	48
Narratives and Rhetoric of the Information Society in Administrative Programmes and in Popular Discourse JARI ARO	69

PART TWO: STRUCTURAL CHANGES

From Technological Control of Production Towards a Meaning- Based Co-ordination of Action: New ICT Applications and an Alternative Organisation Logic GERD SCHIENSTOCK	87
Information Occupations, Informational Work and Social Divisions: The Landscape in Finland and Hungary RAIMO BLOM, HARRI MELIN AND PETER ROBERT	107

Latecomer Strategies and Information Society Visions of Post-Socialism: ICT Policies in Eastern and Central Europe of the 1990s PÁL TAMÁS	144
----------------------------------------------------------------------------------------------------------------------------------------------------------	-----

PART THREE: CHANGING SOCIAL ENVIRONMENT

The Blurring Dividing Line Between Public and Private and the Redefinition of the Public Sphere MÁRIA HELLER	179
New Communication Technologies and the Public Sphere ROBERT ANGELUSZ	218
European Perspectives on Lifelong Learning Environments in the Information Society EERO PANTZAR	240

PART FOUR: CHALLENGES

Global Challenges and National Answers FRANK WEBSTER	259
So what? Reflections on the Study of Information Society KAARLE NORDENSTRENG	279

Contributors

ROBERT ANGELUSZ is professor of sociology, Institute of Sociology, Eötvös Lorand University of Budapest (ELTE).

JARI ARO is research director on the research project “New Media and Everyday Life”, Department of Sociology and Social Psychology, University of Tampere.

RAIMO BLOM is professor of sociology, the University of Tampere.

MÁRIA HELLER is associate professor of sociology, Institute of Sociology of ELTE University and the coordinator of the Hungarian Tempus project.

ERKKI KARVONEN is an adjunct professor of journalism and mass communication at the University of Tampere, and a researcher on the project “Information Society in Finland – Present State and Future Prospects”, Academy of Finland.

ANTTI KASVIO is research director of the Information Society Research Centre, University of Tampere.

HARRI MELIN is assistant professor of sociology, University of Tampere.

KAARLE NORDENSTRENG is professor of journalism and mass communication, University of Tampere.

EERO PANTZAR is programme manager on the Information Research Programme, Academy of Finland.

PETER ROBERT is professor of sociology, ELTE University.

GERD SCHIENSTOCK is professor and scientific director of the Work Research Centre, University of Tampere.

PÁL TAMÁS is professor of sociology, Hungarian Academy of Sciences.

FRANK WEBSTER is professor of sociology, Cultural Studies and Sociology, University of Birmingham, UK.

Preface

For the times they are a-changing...
Bob Dylan

At the beginning of the third millennium the world is undergoing major social, economic and technological changes, a third Industrial Revolution. This revolution is linked to the new information-processing technology of communications and computers. At least two earlier industrial revolutions have already occurred: the *first*, in the last third of the eighteenth century, involved new technologies such as the steam engine and all the machinery powered by it; the *second* one, came a hundred years later, and featured the development of electricity, the combustion engine and automobile industry, science-based chemicals and the beginning of new communication technologies such as the telegraph and the telephone.

These “revolutions” did not create total breaks in history; thus, the continuities in society could be as significant as the novelties. Neither were these revolutions merely technological by nature: they also created organisational, occupational, economic, and cultural changes. It should not be claimed that technological innovation “caused” these societal changes. (This claim would express doubtful technological determinism.) Instead, it can be stated that there is a constant interplay between technical innovations and their social adoption and use.

These historical periods were seen differently by Alvin Toffler, who spoke about the three waves of human civilisation. *The first wave* was linked with the so-called agricultural revolution in the neolithic

age about 8000 B.C.; this “quantum leap” led to the dramatic increase in human population, the formation of cities and states, hierarchical organisation, and class structure – and last but not least: the invention of the new communication and storage technology called writing. *The second wave* was the industrial revolution of conventional history, e.g. the development started by the invention of the steam engine and the use of fossil fuel. This new tide meant the replacement of animal and man power by fossil energy – and the replacement of feudal aristocracy who controlled this resource by a new bourgeois class who controlled new means of production. Industrialisation was a rich, many-sided social process that touched every aspect of human life: it reshaped cities and organisations and created new kinds of labour, transportation and communication. One can add that before the industrial revolution there was a remarkable communication revolution – the invention of printing in the 15th century. *The third wave* now relates to the information technology innovations after World War II. Toffler announced that this third wave would cause as vast planetary changes as did the earlier agricultural and industrial revolutions.

While Toffler’s three waves are large scale phenomena, there could also be minor waves. Nikolai Kondratiev and Joseph Schumpeter were talking about the “long waves” of economic development that results from the endogeneous logic of modern capitalism. Each technological innovation could give an impetus to a business cycle or a techno-economic paradigm that lasts 48–60 years. The first phase of the cycle would be a boom that lasts until the peak is reached; then comes a recession, which turns to a depression. The depression, an economic crisis that forces entrepreneurs to seek new means for profit-making, would encourage people to make innovations that would bring forth a new business cycle. It is to be noted that originally the word “revolution” was understood as a cyclical term, since the word comes from Latin “revolvere” (a circular motion, rotation, as in the expression “revolving door”).

The first technological paradigm or business cycle was started by the steam engine in the 1780s; railroadisation brought about the second cycle in the 1840s, electricity and the internal combustion engine was linked with the third cycle started in the 1890s. The fourth boom started in the 1950s by the invention and application of transistor technology. The boom we are now experiencing began in the 1990s with silicon chips and microcomputers. According to this periodicity, the information age is indeed *the fifth industrial boom*, which will con-

tinue to prosper for the next ten to fifteen years. This contemporary wave could be bigger than the others, just as some waves in the sea can rise as roaring breakers when coinciding with other waves. Now two coinciding waves, namely a “normal” technological revolution and a communication revolution, join their forces and cause an extraordinary powerful surge.

Regardless of how many waves or revolutions we see in history, the newest tide is worth studying. This book gives different perspectives on the phenomenon often called “information society” though we prefer in the title of this book the term “informational society” because it is not yet so overworked and overused as the previous one. “The information society” is a phrase that is used in thousands of administrative or political strategy papers, in loose prophecies, in countless popular articles etc. The term “informational society” or the same in a more extended form “the informational mode of capitalism” is used by Manuel Castells in his seminal trilogy *The Information Age* (1996–1998). A plural form “informational societies” indicates that there could be different ways to organise societies of that kind.

This book is divided into four parts. The *first* part (Chapters 1–3) consists of introductory texts and analyses of the central concepts and information society discourses. The *second* part (Chapters 4–6) is devoted to structural changes in economy, work and organisational life. The *third* part (Chapters 7–9) is about the changing nature of the public sphere and learning environments. The *fourth* part (Chapters 10 and 11) focuses on the global challenges for nation-states and on the research traditions in the field.

Chapter 1. “The Emergence of ‘Information Society’ as a Major Social Scientific Research Programme” by *Antti Kasvio* is an introductory text. It presents an historical overview of information society related debates, the first and second rounds of theorising the impact of new information and communication technologies. How the “information society” became one of the most popular issues in the Western societies? How are the theories of post-industrial society related with the debates on information society? Kasvio brings out the main features of Manuel Castells’ analysis of informational mode of capitalism.

Chapter 2. "Are We Living in the Information Society or in the Knowledge Society? A Deeper Look at the Concepts of Information and Knowledge" by *Erkki Karvonen* concentrates on the first part of the expression "information society", asking the following questions: What is the difference between information and knowledge? Why is knowledge the most valuable resource in economy today? The slogan "knowledge is power!" is often heard, but we are rarely informed of those special features that make knowledge so potent. The text also asks if our society is really a knowledge society or is it rather a society of advanced signal transmission.

Chapter 3. "Narratives and Rhetoric of the Information Society in Administrative Programs and in Popular Discourse" by *Jari Aro* analyses the popular and official rhetoric concerning information society. Two Finnish and one European Commission strategy papers are under consideration here. Aro applies the Proppian and Greimasian myth analysis to probe the deep mythical level of these texts and asks: What are the qualifying, decisive and glorifying tests in texts of this kind? Is the official rhetoric a tale of the quest for some magical device? What is that hidden device?

Chapter 4. "From Technological Control of Production Towards a Meaning-Based Co-ordination of Action: New ICT Applications and an Alternative Organisation Logic" by *Gerd Schienstock* is about transformation processes in organisations. How does the existing socio-economic structure change by the processes of informatisation? How does globalisation affect the development of a new organisation logic? What is the alternative for the traditional Taylorist/Fordist organisation model?

Chapter 5. "Information Occupations, Informational Work and Social Divisions: The Landscape in Finland and Hungary" by *Raimo Blom, Harri Melin and Peter Robert* draws on the statistical data of informational occupations. Instead of sketching great visions of a brave new world, the authors turn to empirical data gathered from several countries and, without any illusions, proclaim what seem to be the trends in working life. They ask what kind of structural changes have taken place in the work organisation due to computers and the use of new technology in general? Are there any new social divisions? Is the in-

formational work as wonderful as it is often advertised? Are the changes so dramatic as many theorists have predicted?

Chapter 6. "Latecomer Strategies and Information Society Visions of Post-socialism: ICT Policies in Eastern and Central Europe of the 1990s" by Pál Tamás is concerned with the globalisation effects in post-socialist countries. The author criticises neoliberal "laissez-faire" policy, and too narrow economic reasoning, which ignores the socio-political effects of globalisation. For instance, the first wave of globalisation before 1914 led to the marked growth of inequalities within nations and between countries. Is this happening again, or are we entering a new phase in a cycle of regulation and re-regulation? Moreover, if the socially destructive effects of markets are recognised, is it possible to put the genie back in the bottle? The problem lies in the fact that policy issues are globalised, but our ability to deal with them is not. The author characterises the post colonial information societies in Eastern Europe. He applies the frontier metaphor: the idea or "cyberfrontier" is related to the frontier of North American "Wild West" in the 19th century.

Chapter 7. "The Blurring Dividing Line Between Public and Private, and the Redefinition of the Public Sphere" by Mária Heller examines how the new information and communication technology will change the nature of the public sphere. Former rigid boundaries between private and public will break down and lead to the appearance of several overlapping public spheres (micro, mezzo, macro). The old mass media are largely one-way communication from transmitter to receiver; the new media encourage people to take part in public discussion on all levels. In the era of the cyber-media many analysts see hopes for a fundamental change in the act of communication, a turn in the erosion of the public sphere, a reappearance and re-institutionalisation on a higher level of a democratic society that actively involves large audiences, although more negative aspects of the changes are also foreseen.

Chapter 8. "New Communication Technologies, and the Public Sphere" by Robert Angelusz asks if the era of mass communication has come to an end. Is there only narrowcasting in the future, and no more broadcasting? To what extent will computer-mediated communica-

tion become the domain of entertainment? Does the new technology help to maintain democracy, public sphere and public, deliberative discussion on common issues?

Chapter 9. "European Perspectives on Lifelong Learning Environments in the Information Society" by Eero Pantzar deals with the subject that has been the most significant theme in European discussions on education. When societies, work and institutions are in constant change, then one's knowledge goes out of date in a short period of time. That is why there is also a constant need to update the knowledge or need for the lifelong learning. Are the informal learning environments better than institutional education in the schools? Are the schools to be replaced by learning centres with modern communication technology?

Chapter 10. "Global Challenges and National Answers" by Frank Webster is an overview of the challenges of globalisation for the nation-states. Many questions treated elsewhere in the book are summarised here. Globalisation means "a triumph of business civilisation": more traditional forms of life like peasantry are destroyed and replaced by money-based economy, markets, commodification of activities and competition. The economic sovereignty of nations is relatively limited. But if the economy cannot be touched by government, then just what are the politicians to do? One key policy has led to a prioritisation of education. Prime Minister Tony Blair used to say that there are three important things, namely "education, education, education"...

Chapter 11. "So What? Reflections on the Study of Information Society" by Kaarle Nordenstreng turns our attention from the issues of information society to the study of this topic in contemporary universities. He asks both why information society is worth studying, and how such studies should be organised, particularly regarding those who specialise in journalism and mass media. His thesis is that information society serves as a useful vehicle to ensure that society is not seduced by fashionable attention to culture and technology. He advocates priority in studies on information society to sociology and political economy, and he calls for a truly interdisciplinary platform for studies, but without sacrificing depth for breadth.

The texts here were written in the context of the European Union's Tempus project (SJEP 11334; 1996–1999). The objective was to develop information society related courses and teaching materials to be used in higher education in Hungary, beginning with the partners of this Tempus project: The Eötvös Loránd (ELTE) University, and the Economic University of Budapest. The Tempus project was initiated at the University of Tampere by professor Kaarle Nordenstreng with the late Professor Veronica Stolte Heiskanen (a scholar of Hungarian origin). The first Hungarian counterparts included the late Professor Rudolf Andorka, who at the time was Rector of the Economic University of Budapest. The Tempus project was targeted at advanced undergraduate students in social sciences, particularly communication. This English version of the textbook is published in tandem with the Hungarian version of the book.

The writers, mostly Finnish and Hungarian scholars, include experts in questions of technology and informational society. One of the leading scholars of information society research, Professor Frank Webster (University of Birmingham, UK) joined the project as an adjunct professor at the University of Tampere and his contribution is also included. *The Information Research Programme of The Academy of Finland* has financially supported this publication. The *Institute of Sociology of ELTE University of Budapest* also participated in the financing. Various bodies at the University of Tampere have born part of the expenses; these include: *The Information Society Research Centre, The Work Research Centre, The Department of Sociology and Social Psychology, and The Department of Journalism and Mass Communication.*

The authors and the editor would like to thank Margot Morgan, Marianne Wargelin and Virginia Mattila for their help in polishing our English.

Erkki Karvonen
May 2001
Tampere, Finland

part one

theoretical perspectives

The Emergence of 'Information Society' as a Major Social Scientific Research Programme

ANTTI KASVIO

We are at present undergoing a fundamental transformation: from an industrial society to the information society. Information society technologies increasingly pervade all industrial and societal activities and are accelerating the globalisation of economies, in particular by providing SMEs with new ways to access to the global marketplace, and societies. (European Council 1998)

The above citation from a recent EU science policy document is just one example of the numerous contemporary statements in which it is taken for granted that nowadays we are living in the midst of a large-scale societal change, and that this process – triggered by the digital revolution – is leading us towards an information society that differs in essential ways from the preceding industrial stage of societal development. But what do we actually mean with the “information society”? Is it just a society with lots of computers and millions of people using the internet? Or do we have a more coherent theoretical analysis about the transformation process or about the new stage of societal development towards which we are heading?

One of today's big paradoxes is that despite a very widespread use of the term “information society” we do not actually have an established social scientific research tradition that would have taken this societal form as its specific object of study. For instance one of the last years' most authoritative sociological textbooks, Anthony Giddens' *Sociology*, did not even mention the term information society

in the index of its first editions (see Giddens 1990). This probably wasn't just an accidental lapse. Rather it reflects the fact that only a few texts were – or still are – produced by the leading social scientific publishers or journals on information society. If social scientists have analysed the ongoing epochal changes, they have been much more interested about distinctions between e.g. “modern” and “post-modern”, “fordism” and “postfordism”, “organised” and “disorganised capitalism”, “early” and “reflexive” modernity, “welfare” and “risk” society etc. than about those that might possibly be emerging between the “industrial” and “information” societies. The very term “information society” has been rather unpopular among academic social scientists because of the loose manner in which the concept was used by many technology journalists, management writers and futurologists during the 1980s.

Thus the first really serious efforts to produce an adequate theoretical understanding about the character of the information society as a qualitatively new stage of societal development are, as a matter of fact, of rather recent origin. It is now possible to say that a crucial step was taken by Manuel Castells though the publication of his *Information Age* trilogy (Castells 1996–67). Since then – and after the enthusiastic comments presented by Anthony Giddens in his review of the trilogy's first volume¹ – we can say that the analysis of the social consequences of the ongoing digital revolution has gained a legitimate position also within the academic social science.

In this article my intention is to present a brief description of the way in which analysis of the information society has developed into an important area of social scientific research. At the end of my presentation I will also present the main outlines of Manuel Castells' theoretical programme and discuss its significance for future research work.

1. Giddens wrote in *The Times Higher Education Supplement* e.g. as follows: “This should be a time of renewal for the social sciences. Modern social science arose from the extraordinary changes that created an industrial order out of the ruins of feudal society. Arguably we live today in a period of equally intense and puzzling transformation, perhaps signalling a move beyond the industrial era altogether. Yet where are the great sociological works that chart this transition? Intellectually feeble accounts of the information society and vacuous accounts of postmodernism fill the space which should be occupied by more compelling and substantive social interpretations. Hence the importance of Manuel Castell's multivolume work, in which he seeks to chart the social and economic dynamics of the information age. It would not be fanciful to compare the work to Max Weber's *Economy and Society*, written almost a century earlier” (Giddens 1996, 18).

PRECEDENTS OF THE DISCOURSE

Conceptions of future among some of the classics of modern social thought

The classical tradition of social scientific research that emerged during the 19th and early 20th centuries was mainly interested in analysing the emergence and specific developmental dynamics of modern industrial societies. The utmost stage of societal development seemed to be a highly industrialised urban society in which the economy was dominated by large and bureaucratically controlled enterprise organisations, the traditional relations of social subordination were replaced by market and voluntary contract relations and in which the traditional belief systems were replaced by much more secular and rationalistic ways of thinking. The key problem for social scientists was to find a way in which such societies could be held together as the traditional ways of maintaining social solidarity did not function any longer. Also socialist utopias produced by the revolutionary working class movement remained within the confines of industrial society. Thus it might seem that in searching the historical roots of modern information society theories we can leave the entire classical tradition aside and move directly to later developments without risking any big omissions.

It is, however, worthwhile to look more closely at the work of some leading theoreticians of the classical tradition. For instance Max Weber analysed in his *Wirtschaft und Gesellschaft* the development of modern capitalism in terms of an increasing dominance of the principles of "formal rationality". We can speak for instance about the emergence of rational, scientific methods of production, the spread of rational managerial principles in capitalist enterprises and the strengthening elements of rationality in different cultural expressions of modern societies. One very important instance of the overall tendency towards rationality was according to Weber the generalisation of "Fachmenschentum", embodied by professional specialists who base their practice on systematic theoretical knowledge acquired through formal education (see e.g. Weber 1976, 576–577). Thus the increasing significance of knowledge in the activities of modern societies, which is nowadays stressed in all information society discussions, wasn't by any means an unknown phenomenon to Weber. In

his political theory Weber also recognised the risks that were connected to the spiritual emptiness of purely formal, instrumental rationality. In modern “plebiscitarian” democracies this might, according to Weber, easily lead the citizens to support charismatic leadership in their search for more substantive forms of rationality (see Weber 1976, 157–158).

Karl Marx on his part analysed in *Das Kapital* the development dynamics and basic contradictions of modern capitalism. According to standard interpretations Marx was primarily a theorist of industrial capitalism who thought that the ruthlessly advancing capital accumulation process would gradually drive the industrial proletariat into a revolutionary force that would in the end transcend the entire capitalist system. The socialist mode of production would be based on a common ownership of the most crucial means of production – i.e. factories, machinery etc. Within this framework it might therefore seem futile to search for hints towards any kind of information society theorising. One should, however, take into account the fact that in analysing the development of forces of production Marx stressed that the productive apparatuses would in future be increasingly guided by systematic scientific knowledge. The actual subjects of the production processes would, according to Marx, be the so-called polytechnical workers, i.e. workers who would be able to utilise modern scientific and technical knowledge in their productive activities (see Marx 1968, 519–513). Thus a century ago Marx was clearly conscious of the future role of knowledge as a crucially important productive force. Also he took it rather much for granted that, as the productive forces developed further, a declining share of the society’s total work input would be used in direct production activities.

There is also a third important strand in early socio-economic theorising which is of great relevance for later discussions about the information society. In his book *Capitalism, Socialism and Democracy* Karl Schumpeter presented a thesis defining entrepreneurship as a central moving force of economic and social development in modern societies. According to Schumpeter the continuous and often very tough competition between individual capitalists has at times led to the destruction of large amounts of productive resources, especially during economic recessions. But on the other hand these same processes of ‘creative destruction’ have been leading into an enormous generation of new productive resources. As a matter of fact unending change functions as the very basis of the existence of a capitalist sys-

tem which cannot survive in a stationary state (Schumpeter 1976, 81–86). In recent times the Schumpeterian approach has served often as an interpretative framework when analysing the high-yield - high-risk business activities which are typical for the 'new economy' that is emerging alongside the digital revolution (see e.g. Burstein & Kline 1995, Grove 1996).

Theories of industrial society during the 1950s

After the end of the Second World War most industrial countries were struggling with enormous tasks of economic reconstruction. In many countries the economic instability of capitalism and mass unemployment were seen as factors that had contributed significantly to the rise of nazism and socialism as well as to the emergence of retrograde nationalism. Therefore the intention was to create conditions in which such crises wouldn't be repeated again and in which everybody would be guaranteed at least some basic security. Several countries especially in Eastern Europe and Asia, were following the socialist path of development, and many former colonies acquired national independence. All over the world efforts were made to build economic and institutional settings which would enable for citizens to reach standards of living so far enjoyed only within the most advanced countries.

This was a period of renewal for Western social science. Sociology had already established its academic positions in the United States. In Western Europe also a new tradition was created according to the North American model. Modern empirical methods were used, and a new generation of social scientists started to study problems characteristic of advanced industrial societies. Sociology of work and industry was one of the favourite topics among this generation. One important strand in this whole was the theory of this so-called "industrial society". Authors like Clark *Kerr*, Reinhard *Bendix*, Raymond *Aron*, Helmuth *Schelsky* and others wrote about the general developmental dynamics of industrial modernisation. These writers had a unitary vision about the emergence of modern industrial and urbanised societies which would have societal institutions and political organisations built essentially according to the model of Western pluralistic democracies. All the countries would finally end in this rather universal system, even if the nation-building processes would follow

different kinds of concrete historical paths. The centrally planned socialist economies were also seen as temporary deviations from this general developmental scheme.

At that time much criticisms were directed against the theories of industrial society. In the developing countries the theorists of industrial society were criticised for ethnocentrism because of the ways in which they made absolute of the political institutions typical of Western countries. Socialists criticised the denial of any possible deviation from the universally “rational” capitalist development model. A third important strand was the cultural criticism presented by e.g. some representatives of the *Frankfurt School* vis-à-vis the naive developmental optimism that was according to them characteristic of most theories of industrial society (e.g. Habermas 1963).

Even if during the 1950s and early 1960s the social scientific discussions were still dominated by debates about the logic of industrial modernisation, some economists had already started to look beyond the industrial stage of development. For instance the American economist Colin Clark published in 1951 a book *Conditions of Industrial Progress*, in which he stated that modern societies would go through three stages of economic development. The first stage would be dominated by primary industries, whereas the industrial stage would be dominated by different kinds of secondary activities. A third stage would follow in which most people would earn their living from different kinds of tertiary activities, mainly from services. Increasing productivity in the primary and secondary sector activities would be liberating resources that would be oriented towards the third sector. The United States, in which more than half of the entire economically active population would soon be employed in the tertiary sector, seemed to be leading this development (Clark 1951).

Knowledge as a factor of economic growth

Theories of industrial society were debated actively during the 1950s, when the post-war economic period was just beginning. Later on the situation changed when the advanced industrial countries went through a long lasting period of strong economic growth, high levels of employment and increasing affluence of their populations. This was also a time of rapidly expanding education, the building of new red-brick universities and the initiation of large-scale technology pro-

grammes at least partly funded by the state. During this time the question of knowledge as an increasingly important factor of economic growth arose as a central topic of discussion.

Peter F. Drucker, the founding father of modern management literature, was one of the first theoreticians who saw the real significance of knowledge as becoming perhaps the most important competitive asset of modern enterprises during the 1950s. Later he developed this thesis further e.g. in his book *The Age of Discontinuity* that came out in 1969 (see Drucker 1993, 6). Another pioneering figure was the American economist Fritz Machlup, who published in 1962 a book named *The Production and Distribution of Knowledge in the United States*. In this book Machlup tried to analyse concretely the role that knowledge had in the functioning of the U.S. economy. He gathered a lot of statistical information about knowledge flows and assets, and later wrote many articles and research papers that gained a lot of attention among other economists of his time (Machlup 1992).

Within the OECD several studies were made in which attempts were made to identify more precisely the role of knowledge and skills as being the 'fourth' production factor alongside the three traditionally mentioned land, labour and capital. There was general awareness that vast resources had been invested in education and research & development (R&D) activities, especially in the most dynamically developing economies. Now it was necessary to measure more exactly the actual contribution of knowledge to the pace of economic growth in different countries. A typical method was the use of knowledge as a kind of a "residual" factor. This means that when the contributions of all other factors of economic growth were taken into account, the remaining part was interpreted as being the consequence of increasing levels of growth. A practical recommendation for the governments of advanced industrial economies was that they ought to increase the resources directed to R&D and education, if they wanted to maintain high levels of economic growth. Harvey Brooks was one of the most important figures behind these discussions, and one of the most important publications was the OECD report named *Science, Growth and Society* that was published in 1972 (OECD 1972).

A Marxian variant of these discussions developed in the form of discussions about the so-called 'scientific and technological revolution'. For instance the USSR Academy of Science published a book named *Man – Science – Technology* as an overall synthesis of these dis-

cussions (USSR Academy of Science 1973). An important precedent was, however, the so-called *Richta*-report with the title *Political Economy of the 20th Century* that was published by the Czechoslovak Academy of Science in 1969. This report presented an optimistic vision of the emancipatory possibilities connected to scientific and technical development, but was flanked with civilising elements reminiscent of the ideas of “socialism with a human face” that arose during the Prague spring and that were later crushed violently through the military invasion of Warsaw Pact countries (Richta-Report 1969).

There emerged also a tradition of criticisms directed against the naive technological optimism typical for many of the above mentioned theories. Foremost examples were Herbert *Marcuse* and his analyses of the “one-dimensional” society (Marcuse 1968), attacks against “technocracy” (Galbraith 1967), and later ecologically founded discussions about the natural limits of continuous economic growth (Meadows et al. 1972).

Theories of ‘post-industrial society’

The “glorious thirty years” (Fourastié 1994) of post-war economic growth and a naive belief in Keynesian economic regulation ended with the increasing economic problems of advanced industrial countries in the late 1960s and early 1970s. The first energy crisis in 1974 especially, and the consequent world-wide economic recession, shocked many advanced industrial countries. In addition to these instabilities new themes rose to the fore in the social scientific discussions. One of the big issues during the 1970s was the debate about the movement from industrial to post-industrial society.

Daniel *Bell* is internationally known as the foremost theoretician of post-industrial society. His book *The Post-Industrial Society* came out in 1973. In this book the authors’ main thesis was, that the advanced countries were moving from the “industrial” stage towards a “post-industrial” stage of development. One of the most important expressions of this transition was that the majority of these countries’ economically active citizens would earn their living from different kinds of post-industrial service sector occupations. The United States was the first country to move into the post-industrial stage, but Western Europe and Japan soon followed.

In presenting his analysis Bell wanted to distance himself from the earlier theories of capitalism and industrial society in the sense that he did not want to separate any economic or basic technological structure that would determine the development of all other parts of the society. Rather he spoke about the selection of different kinds of 'axial principles' as a perspective through which one would be able to analyse the developmental dynamics of different institutional arrangements. The main feature that separated post-industrial societies from all preceding stages of societal development was the increasing significance of theoretical knowledge. According to this observation Bell also thought that the institutions of knowledge – universities, research institutes etc. – would become the leading centres of power in the same sense as the headquarters of large industrial enterprises used to be in the industrial stage.

Bell was known mainly as an academic liberal when he published his book, which did not as a matter of fact lead into such a big debate as perhaps one could have expected. The younger generation of social scientists was more thrilled e.g. about critical theory and Marxist political economy. Later on Bell himself continued writing about the post-industrial society, which he identified without any big revisions the information society during the 1980s. During that decade he also shifted politically towards new conservatism, which was at that time fast gaining ground in American universities, and this was also the position from which he wrote his next magnum opus, *The Cultural Contradictions of Capitalism* (1987). In Bell's theoretical perspective these contradictions were naturally those characteristic more generally for post-industrial information societies.

Bell did not, however, actually introduce the term 'post-industrial society' into modern social scientific discourse. In this respect the honours belong to the French sociologist Alain *Touraine*, who had published his own analysis, the book *La société post-industrielle* in 1969.

In the 1950s Touraine was one of the founders of the French "sociologie du travail" tradition, and he did extensive studies about the development of industrial work at the Renault automobile factories in Paris. He was also an active left intellectual, who believed in the emancipatory potentials of the industrial working class. Rather soon, however, he came to the conclusion that the social forces of traditional industrial society would not be leading the development of

the society that was emerging at that time. The main conflict lines would develop between the different kinds of new social actors and the “programmed society” that was emerging. This thesis was at the core of the book, which was very much influenced by the heated debates that were going on at all French universities and in all intellectual circles at the time of the big student revolts of 68.

Touraine’s analysis of the postindustrial society did not become internationally as well-known as Bell’s, but his intellectual influence can be seen in many later writings closely related to theories of the information society. For instance, Manuel Castells was very much indebted to Alain Touraine when he developed his own theory of the information age. Touraine himself moved on from his analysis of postindustrial society towards a long series of studies on different new social movements (e.g. the antinuclear movement, women’s movement, ecological movement, the Polish *Solidarnosz* etc.). Also he further developed his theory about the developmental dynamics of modern societies, which he studied as a specific kind of self-production process, and the methodology of “sociological interventions”, which is one form of action research. Touraine has also remained up to the present a highly visible figure in French and European intellectual life (for an interesting collective account of Touraine’s work see Clark & Diani 1996).

The microelectronics revolution and its consequences

The economic recession of the mid-1970s led into a broad wave of rationalisation within the industries of most advanced countries. This was also the time when many textile, clothing and electronics companies started to relocate their activities from advanced industrial countries to Asia, North Africa, Latin America and to other regions where the production costs were much cheaper. During the early 1980s a lively discussion arose about the so-called “microelectronics revolution”, which was assumed to influence strongly the future economic growth and employment prospects of advanced industrial countries.

The microelectronics revolution began during the late 1940s, when the first transistors were built at the Bell laboratories in California. The real significance of this revolution became visible later when the companies learned to produce integrated circuits printed on silicon chips. The next big innovation was microprocessors, thumbnail-

size components which were able to perform the functions of an entire computer. The unit prices went down and the effective functioning of microelectronic components grew very fast as the basic technologies developed and the companies started to produce them on a massive scale.

In the early 1970s microelectronics were first applied for military purposes. Later on they became a basis for the development of the so-called flexible manufacturing technologies. One started to talk about such new technologies as e.g. computer-aided manufacturing, computer-aided design, industrial robots etc. Another important new area of commercial applications was the development of personal computers. A big step was taken when the famous Apple I and Apple II personal computers were introduced to the market.

In Western countries a lively discussion emerged about the social and economic consequences of the microelectronics revolution. It was feared that the generalisation of microelectronic technologies would deepen the problems of unemployment. The new programmable machines would damage the traditionally strong labour market positions of skilled industrial workers, it would make it easier to relocate production away from the Western countries, and soon the job-destroying effects of automation would become visible in the offices as well. A pessimistic vision emerged in discussions about jobless growth and the crisis of work in western societies. Some of these problems were discussed in the book *Microelectronics and Society* published by the Club of Rome (see Friedrichs & Schaff 1982).

During these times new kinds of criticisms towards the theories of postindustrial society emerged. For instance such British authors as Jonathan *Gershuny* and Ian *Miles* wrote that within the socially relatively homogenous Western societies the prevailing trend would not be towards an increasing expansion of services, because the citizens did not have enough money to buy an increasing volume of services from each other. Rather the trend would be towards the development of such technologies which would enable people to eliminate the need to purchase more services. For instance, the citizens would buy and use more automobiles instead of using taxis, they would buy televisions or records instead of going to the theatre or a concert, they would buy a new washing machine instead of taking their dirty clothes to a laundry, they would purchase microwave ovens and frozen meals instead of going to a restaurant etc. This trend towards a

“self-service society” was strengthened by the continuous cheapening of labour-saving technical devices in relation to the costs of the use of service labour (see e.g. Gershuny 1978, Gershuny & Miles 1983).

In many countries – e.g. in Finland – the public authorities set official committees to produce objective analyses about the social and economic consequences of the microelectronics revolution. In many cases these reports and white papers produced a somewhat more optimistic assessment about the employment prospects in advanced industrial countries than were earlier presented in public discussions. Even if certain risks undeniably existed especially among some occupational groups, more new jobs would probably be created in the fast-growing sectors of the economy than would be destroyed as a consequence of the increasing utilisation of new technologies.

Fairly soon bolder and more speculative interpretations emerged about the new opportunities that might be opening with the progress of the microelectronics revolution. It would not only help create new jobs especially in small innovative enterprises. It might also bring back to Western countries some of the manufacturing activities that had earlier been relocated to low-cost countries. The development of microelectronic technology might make it possible to liberate human work from its traditional boundaries of time and location, and it might transform the everyday lives of citizens. Such speculations formed a platform for the emergence of the first theories of an information society.

THEORIES OF INFORMATION SOCIETY: THE FIRST ROUND

One of the most important influences for later social scientific theories on information society came from the field of economics. A young doctoral student from Stanford University, Marc Uri *Porat*, published 1976 his Ph.D. dissertation on *The Information Economy*, in which the author revised the traditional division of modern economies and their occupational structures into the primary, industrial and service sectors. Among the different postindustrial activities Porat separated a fourth sector, the information sector, specifically information occupation. On the basis of careful analyses of the U.S. economic and occupational statistics Porat could also show that just

the information occupations had been the fastest growing occupational group in the U.S. economy (see Porat 1977). A lot of attention was paid to Porat's results at the time of their publication, and later on similar kinds of analyses of the growth of information economy and information jobs were made in several OECD countries.

Among the first discourses directly related to the emergence of information society were those programmatic writings in which the authors propagated an effective utilisation of new microelectronic technologies. In Western Europe for instance James *Martin* published 1979 a book *The Wired Society*, in which he sketched a vision about a society with highly developed telecommunication networks. The French president Giscard d'Estaing ordered a report from two well-known specialists, Simon *Nora* and Alain *Minc*, who published their report entitled *The Telematic Society* in 1981. This book played an important role when the French authorities decided to invest large amounts in the development and spread of the so-called Minitel system in France. Perhaps at that time one of the most devoted proponents of the idea of "information society" in Western countries was Tom *Stonier*, who built the arguments presented in his book *The Wealth of Information: A Profile of the Post-Industrial Economy* very much on the analyses made earlier by Porat about changes in the occupational structures of contemporary societies (Stonier 1983).

One of the early actors in this field was the Japanese Ministry of Industry and Trade MITI. It had previously made Japan a global leader in the development and production of microelectronics. Now it saw its central task as taking Japan to the forefront as an information society. Quite ambitious experiments were made e.g. through the building of experimental suburbs with many possibilities for mutual networking. Recently it has been said that the entire term 'information society', *johoka shakai* in Japanese, has actually come to Western discussions from Japan. One of the foremost theoreticians of information society, Yoneji Masuda, is also Japanese, but we will come back to his work later.

In Western countries perhaps the broadest publicity was gained by such futurological authors as Alvin *Toffler* and John *Naisbitt*. In his book *The Third Wave* (Toffler 1980) Toffler gathered a large collection of different kinds of changes that he thought to be connected to the new industrial revolution that was carrying us from the age of traditional smokestack industries towards a new kind of postindustrial

civilisation. He wrote about the new businesses arising around computers, electronics, biotechnology and other leading branches of the economy. He wrote also about flexible factories, niche markets, the generalisation of part-time work and the deconcentration of mass media. He analysed also the fusion of producers and consumers into new kinds of “prosumers”, the development of distance work as well as other changes that were going on in political life and within nation-states.

John Naisbitt on his part wrote about the ten “megatrends” that would transform the ways in which advanced industrial societies had earlier been functioning. Among these megatrends were e.g. the microelectronics revolution and the spread of its applications, which has led into the transition from industrial to information society. He wrote a lot about changes in the occupational structure, the rise of entrepreneurship, the development of a global economy and pressures towards the development of new work organizations. He did not, however, combine the different strands of his analysis into a coherent theory of information society (Naisbitt 1984).

One of the boldest interpretations about the emancipatory potentials of a postindustrial information society was presented by Yoneji *Masuda*, a Japanese author largely influenced by Western futurologists. His book *The Information Society as Post-Industrial Society* (1981) is said to be an embarrassing combination of technocratic social engineering and high-flying civilisatory ideas. Masuda describes the future information society as being a kind of a “computopia”, a place in which a general harmony dominates. It is characterised e.g. by an extensive utilisation of computers and electronic networks, strong growth of the information or knowledge sector, formation of a “synergic economy” in which the markets and price mechanism are replaced by purposive action of voluntary groups, the replacement of hierarchies through horizontal organisations, the development of participatory democracy and the adoption of new values within the framework of which people are striving towards good life (Masuda 1990, 4-10).

We can thus conclude that the first round of analyses directed towards the information society were mainly produced by futurological and management writers, not by academic social scientists, and the contributions did not receive an enthusiastic response among the latter. Some mainly critical reviews have been written about these discourses, in England e.g. by Krishan *Kumar* (1995),

David Lyon (1988) and Frank Webster (1995) and in Germany by Hensel (1990). In Finland an interesting review was written by Lehtinen and Luotola (1985). Most of the academic social scientists considered the information society literature to be a collection of intellectually rather loose popular writings without any real theoretical significance. Some more serious analyses were written about so-called "knowledge" or "communication" societies - which in this case meant societies in which expert knowledge has an increasing influence (Stehr 1994) or in which the development of communications are changing the ways in which modern societies are functioning (Münch 1991). Other kinds of discourses like those concerning postmodernism, reflective modernisation, life politics, risk society etc. were experienced as being more relevant and intellectually more exciting².

Those researchers acting between social sciences and computer studies, who were keenly interested in the societal effects of computerisation, were the exception to this generally sceptical attitude towards information society theorising. An indication about this has been for instance the *Information Society Journal* that was launched by a U.S. researcher of social informatics, professor Rob Kling in 1981. There have also been researchers of mass communications (e.g. Mosco 1996) and telecommunications (Melody 1997) who have found relevant connections between their specific subject areas and more general reflections about the development of postindustrial information societies.

FROM DIGITAL REVOLUTION TOWARDS INFORMATION SOCIETY

In some way the optimistic visions presented by the first-generation theorists of information society seemed to be realised during the 1980's, when the economy grew vigorously and new jobs were cre-

2. It is, however, interesting to notice that one of the key texts of contemporary postmodern theoretical discourse, Jean-Francois Lyotard's *La Condition Postmoderne* (1979) was originally written for the University Council of Quebec as a report about knowledge in the information society. The connection isn't just external; the essay contains highly interesting reflections upon alternative paths of 'informationalisation' that have not lost their relevance during the two decades that have passed since the time of its writing.

ated in most advanced industrial countries. This was, however, also a time of hard money-making, straightforward consumerism and tough individualist social values, which did not leave very much room for the more liberal or humanistic ideals connected to some visions of a future information society. The whole situation changed, however, as a consequence of the stock market crash in 1987 and the economic recession that followed in early 1990s.

During the recession the rate of unemployment rose, especially in Western Europe, to levels that were not experienced earlier during the entire postwar period. It was noticed that during each economic cycle unemployment had risen onto a higher level. Some of the leading business representatives stated that unemployment might in future rise even further due to the increasing pressures of global competition, the relatively high cost levels in advanced industrial countries and the continuous rationalisations that would take place both within the private and in the public sector. Innovation researchers pointed out that during the 1980s most technological innovations had been oriented towards process innovations, i.e. innovations which do not create new demand but which make it possible to satisfy existing demand with a smaller use of labour force and other resources. Therefore it was feared rather generally that the advanced industrial countries might be approaching an era of jobless growth during which the pace of growth would not be fast enough in order to be able to compensate for those job losses that would follow from the organisational downsizing processes.

Within these conditions some of the leading innovation researchers directed their attention towards the so-called "digital revolution". Digital revolution was regarded as a major technological innovation that continued further those change processes earlier triggered by the microelectronics revolution. The essence of the digital revolution is in the generalisation of a new way of processing information - based on binary logic - and in the development of increasingly effective ways of handling and delivering such information. This process has led into the construction of "information highways" and into the development of increasing synergies between such previously separate technologies as computers, telephones and electronic mass media. One has started to use the term "new information and communication technologies" to cover these areas.

For instance Richard *Freeman* and Luc *Soete* presented the digital revolution as a basis for the formation of a new "technological para-

digim" that would permeate all the major areas of economic activity and that might in this capacity function as the initiator of a new long wave of vigorous economic growth in the same way as for instance the generalisation of automobiles has functioned during previous decades. The great potential of new information and communication technologies is seen to lie in their capacity to generate new kinds of needs and entirely new demand. Their actual job-creating potentials are not connected to the actual production of new information and communication technologies, but rather to the development of software, services and new kinds of contents that are being delivered via the new information highways. An important factor is also the way in which an effective utilisation of new information and communication technologies might help improve the competitiveness of advanced industrial countries in a situation in which they had already largely lost their relative competitive advantages vis-a-vis the emerging economies in more traditional areas of economic activity (see e.g. Freeman & Soete 1994).

Ideas concerning the potential possibilities connected to the progress of digital revolution were received with great enthusiasm both among the decision-makers of advanced industrial countries and also among the general public. Many political leaders struggling with problems of unemployment took the digital revolution as a kind of salvation message, and a large number of conferences, meetings and roundtables were organised around this topic during the years 1993–95. In the United States president Bill Clinton and his vice Al Gore launched an extensive "National Information Infrastructure Programme", whereas the European Union included information highways as an essential element of those "transeuropean networks" that would have an important role in the employment policies designed in the "Growth, Competitiveness and Employment" white paper that was published in December 1993 (EC Commission 1993).

From our point of view it is important to notice that still in the early 1990s "new information and communication technologies" and "information highways" were generally spoken about, whereas from 1993–1994 for instance the EU authorities started to use the term "information society" in order to stress the overall character of changes that were going on. For instance the Directorate General III of the European Commission, headed by the commissioner Martin Bangemann, presents the following "official" definition of the term "information society":

The Information Society is the name given to the European Union's response to the revolution in society triggered by the rapid developments in information and communications technologies. The Information society is a revolution based on information, itself the expression of human knowledge. Technological progress now enables us to process, store, retrieve and communicate information in whatever form it may take – oral, written and visual – unconstrained by distance, time and volume. This revolution adds huge new capacities to human intelligence and constitutes a resource which changes the way we work together and the way we live together. (European Commission 1998)

Both international organisations and national authorities started setting different kinds of taskforces to formulate general strategies and to launch immediate concrete actions in order to promote the development towards information society. During the early 1990s there were many kinds of processes that stimulated a general interest towards questions of information society. One was the very fast development of technology, which was expressed e.g. in the introduction of increasingly effective computers and other information technological products to the markets. Bill *Gates*, a former “computer nerd”, had just risen via the huge success of Microsoft to become the richest man in the world. Several other spectacular success stories could be found in the businesses growing around the digital revolution.

A new generation of popular writers – like Nicholas *Negroponte*, the director of MIT Media Lab – were promoting actively the ideas of digital revolution (see *Negroponte* 1995), the numbers of internet users were increasing at an explosive rate all over the world, and schools, companies, media, public authorities and individual households have done their best in order maintain themselves at the pace of the technological, economical and cultural revolution that is said to be taking place. The United States, the actual starting point of the digital revolution, seemed to be moving towards a new economy in which the rise of stock market prices was hitting all earlier records and in which the traditional economic fluctuations were assumed to have passed into history.

THE RE-ESTABLISHMENT OF THE ANALYSIS OF INFORMATION SOCIETY AS A RESEARCH PROGRAMME

Scepticism among the social scientists

One paradoxical feature in recent developments has been that one has spoken almost overall about the ongoing transition towards the information society as a qualitatively new stage of societal development. One of the very few places where this discussion has not come to the fore has been social scientific literature itself. The economists for instance within the OECD have had lively debates about the dynamics of "knowledge-based economies" (see e.g. OECD 1996), and many social scientists have been highly interested about the emergence of new kinds of "virtual communities" together with the spread of electronic networks (see e.g. Turkle 1996). But until recently the social scientists have not generally accepted the idea that the digital revolution would really mean such a fundamental social transformation as did happen for instance two hundred years ago as a consequence of the industrial revolution. It is quite evident that the social scientists want to distance themselves from the simple causal inferences according to which changes within the socioeconomic sphere could really be analysed as "social consequences" of technological development that proceeds according to its own internal logics. Many social scientists may consider the discussions about information society mainly as a rhetorical means which will help persuade people to behave in a certain manner.

The criticism presented by Krishan Kumar a couple of years ago against popular conceptions of information society is probably representative of the attitudes that have prevailed more broadly among the academic social scientists. According to Kumar

The information society is a reality, and we inhabit that reality. It has affected the way we see the world and the way we live in it... But an information revolution – a speeding up of the supply and use of information goods – is not the same thing as an information society. The information revolution may be changing our attitudes to politics, work, family life and personal identity in complex ways but so far this does not seem to add up to a new form of society... Certainly we have no warrant for accepting the claims of Bell,

Stonier and the other theorists of the information society that we have entered a new phase of social evolution, comparable to the “great transformation” ushered by the industrial revolution. That revolution achieved a new relationship between town and country, home and work, men and women, parents and children. It brought in a new ethic, and new social philosophies. There is no evidence that the spread of information technology has caused any such major changes. On the contrary, the bulk of the evidence indicates that what it has mainly done is to enable industrial societies to do more comprehensively what they have already been doing. (Kumar 1995, 162)

However, the attitudes have started to change gradually within the academic social sciences³. Undoubtedly one of the most important turning points has been the publication of Manuel Castells’ *Information Age* trilogy in 1996–97 and the reception this work has received within the social scientific community. Castells has made the first effort to grasp systematically the essential features of that fundamental societal transformation that we are approaching together with the advance of the digital revolution.

Castells’ analysis

This chapter does not allow enough space for an extensive presentation of Castells’ ideas. It is, however, important to know at least the main features of his analysis. Castells himself presents his main goal as follows:

This book studies the emergence of a new social structure, manifested under various forms, depending on the diversity of cultures and institutions throughout the planet. This new social structure is associated with the emergence of a new mode of development, informationalism, historically shaped by the restructuring of the capitalist mode of production towards the end of the twentieth century. (Castells 1996, 14)

3. One example is for instance the launching of a new social scientific journal *Information, Communication and Society* by Routledge with a distinguished editorial board and with a purpose to provide “an international forum where the emerging properties of the information society can be critically explored and disseminated” (*Information, Communication and Society* 1998).

It is important to notice from the outset that Castells does not want to present himself as a theoretician of the Information Society. Neither does he want to present the society he is analysing as a postcapitalist society. Rather he sees his main task is to analyse the "informational mode of development" of advanced capitalist societies. He describes the *differentia specifica* of this formation in the following manner:

In the new, informational mode of development the source of productivity lies in the technology of knowledge generation, information processing, and symbol communication. To be sure, knowledge and information are critical elements in all modes of development, since the process of production is always based on some level of knowledge and in the processing of information. However, what is specific for the informational mode of development is the action of knowledge upon knowledge itself as the main source of productivity. Information processing is focused on improving the technology of information processing as a source of productivity, in a virtuous circle of interaction between the knowledge sources of technology and the application of technology to improve knowledge generation and information processing: this is why, rejoining popular fashion, I call this new mode of development informational, constituted by the emergence of a new technological paradigm based on information technology. (17)

Castells locates the historical emergence of the new informational mode of development around the economic restructuring processes that begun within the advanced industrial countries and especially in the United States during the 1980s. He speaks also about the rise of informationalism as a kind of capitalist *perestroika*. All his analysis revolves around three fundamental axes: the changes that take place within the areas of material production, human experience and in the structures of power.

One can discern in Castells' analysis two major trends that have driven forward the development towards informational capitalism. One of them is globalisation of the economy and the other is digital revolution. The actual transition takes place in many dimensions. Castells writes for instance about the emergence of new kinds of network enterprises, changes in the institutions of work, the cultures of "real virtuality", the "space of flows" as the main driving force in the spatial organisation of society's activities, "timeless time" as a spe-

cific combination of our past, present and future, the emergence of networks as a fundamental organising principle of contemporary societies, the specific dialectics between identity and power, a new division between the insiders and the excluded and the very important and problematic relations that emerge between the Net and the Self.

In developing the main categories of his analysis Castells stresses that he does not want to present any totalistic and conceptually closed “theory” of informational capitalism. Rather he wants to point out the character of informationalism as a historical project that can be realised in many different ways depending on the specific historical, institutional and cultural settings in which the projects are being realised in each concrete time and locality. This methodological principle can be seen in the composition of the three-volume book which consists of a large number of quite concrete studies of individual objects and processes. The concrete historical components are especially pronounced in the second (Power and Identity) and third (End of Millenium) volumes of the book. The case studies are bound together by means of careful conceptualisations of those analytical categories that form the author’s actual theoretical programme. But Castells does not want to go further than this in formulating a substantive “theory” of informational capitalism. As he himself writes,

As for the actual content of this common social structure that could be considered to be the essence of the new informational society, I’m afraid I am unable to summarize it in one paragraph: indeed, the structure and processes that characterize informational societies are the subject matter covered in this book. (22)

Despite these methodologically well grounded reservations Castells does present later in the first volume of his book an informative description about the “network society” that according to him expresses the actual core of the way in which the societal activities will increasingly become organised in informational capitalism. Apologising for the lengthy citation I want to present the passus as a whole:

Our exploration of emergent social structures across domains of human activity and experience leads to an overarching conclusion: as a historical trend, dominant functions and processes in the information age are increasingly organized around networks. Networks constitute the new social morphology of our societies, and

the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture. While the networking form of social organization has existed in other times and spaces, the new information technology paradigm provides the material basis for its pervasive expansion throughout the entire social structure. Furthermore, I would argue that this networking logic includes a social determination of a higher level than that of the specific social interests expressed through the networks: the power of flows takes precedence over the flows of power. Presence or absence in the network and the dynamics of each network *vis-a-vis* others are critical sources of domination and change in our society; a society that, therefore, we may call the network society, characterized by the preeminence of social morphology over social action. (469)

Assessments

It is still too early to assess the real significance of Castells' analysis for the development of modern social scientific thinking. Therefore it is also too early to say whether the comparison made by Anthony Giddens between Castells' work and the *Wirtschaft und Gesellschaft* of Max Weber we have referred to earlier is justified or not. Neither do the reviews that have appeared so far in the leading social scientific journals help clarify the issue very much (see e.g. Giddens 1996, King 1998, Williams 1998). And we do not know yet, whether Castells' analysis of informational capitalism will become the dominant theoretical paradigm for the studies of epochal changes we are at present experiencing.

From the point of view of the history of theory it is interesting to notice that Castells had already presented essential parts of his conceptual and theoretical apparatus several years earlier, in his book *The Informational City* (Castells 1989), which in itself was received positively as an interesting and innovative analysis of contemporary urban developments, but which was not regarded as a major theoretical breakthrough in modern sociology. Of course Castells has added a lot of elements to his theoretical apparatus in writing the *Information Age*, which has a much broader scope. It seems that not only the actual content of a theoretical contribution, but also the correct timing of its presentation do signify a lot from the point of view of the actual impact it has within the scientific community.

A reader of the *Information Age* may have varying experiences in different stages of acquaintance with the text. The very first experience could very well be great enthusiasm, which is later somewhat diminished by the feeling that some of the most time-bound materials might turn into a deadweight rather soon, which isn't necessarily good for a book that is expected to attain the status of a modern "classic". Sometimes one may get a feeling of the euphoric tempo with which the author (who during his writing was forced to struggle with a difficult illness) has written certain parts of the manuscript, and this means that in certain parts the formulations are not fully finished and sometimes the reader is left rather unsure about what the author actually means with some of his categorisations. With still further reading one starts, however, to admire the analytical clarity and the real innovativeness of the core elements of the author's theorisation. Also the historicism of the book's approach gradually appears as a correct solution.

During the last years some other interesting analyses have been presented about the information society. For instance Frances Cairncross has written about the "death of distance" as one of the fundamental consequences of the spread of new electronic networks (Cairncross 1997), and Peter F. Drucker has written about the transition from advanced capitalism towards a new kind of post-capitalist society in which knowledge replaces capital as the most important source of wealth (Drucker 1993). Alain Touraine has analysed the social, cultural and political dimensions of the ongoing transformations in a highly interesting manner in his *Pourron-nous vivre ensemble* (Touraine 1997)⁴. Among these perhaps Drucker's contribution can be regarded as the clearest and theoretically most grounded alternative to Castells' conception of informational capitalism. There is not,

4. Touraine has also presented in a recent article a highly interesting account of the way he has tried to understand the dynamics of contemporary societies: "Just as Marx, following Ure, showed that it was the factory, and thus a new form of production, which marked the beginnings of industrial society, so the birth of programmed, post-industrial society can be located in the emergence and rapid development of activities of mass use of information, and more precisely of symbolic messages relating to personality and culture. We must not, therefore, define post-industrial society in technological terms. It is always in terms of culture and social relations of production that the definition of a societal type must be made; this point is constantly present in my analysis, even though it is not explicitly formulated" (Touraine 1996, 316). On the basis of this account it is very understandable that also Touraine is reluctant to use the term 'information society' as an overall characterisation of the new type of society that is emerging.

however, one single contribution that would be able to compete with the book of Castells in terms of its theoretical scope and the author's capacity to synthesise several essential features of today's societal development into a coherent framework of interpretation. Therefore it is evident that even if Castells' approach will not be adopted by every social scientist interested in analysing the epochal changes of today, it will be very difficult for anybody to totally ignore his contribution. In this sense Castell's work has become an intellectual benchmark, against which everybody can try to sharpen one's own analytical sabres.

CONCLUSIONS

The short theory historical overview we have presented above shows that even if the concept of information society is of rather recent origin, modern social science has a rather long tradition of theoretical reflections about the increasing significance of knowledge and information in the functioning of advanced societies. Today we have also entered a historical stage in which it is practically impossible to avoid noticing the huge impact which new information and communication technologies have in all spheres of modern living. Thus even if we haven't yet a valid conception of the "information society" or a widely accepted theory of its functioning, all social scientists nowadays must somehow take the significance of the digital revolution into account in their work.

It is also important to point out that there are many levels on which we can try to analyse contemporary information societies. The production of coherent overall theoretical interpretations about the character of the epochal changes we are experiencing is of course a task that has to be worked out by the social scientists. But at the same time social science must do concrete research e.g. on the ways in which the institutions of work are changing, on coming trends in the society's spatial organisation, on the development of new media, new types of entrepreneurship etc. In all these specific fields of research we have to ask in what ways the development and use of new information and communication technologies are influencing the ways in which the central societal institutions of contemporary societies will function in future.

Besides producing adequate descriptions about the ongoing change processes social science must adopt also a more constructive role; i.e. it has to participate directly in the building of tomorrow's information societies. This task has become necessary because different kinds of technical and social innovations are nowadays increasingly linked to each other. Social scientists should adopt an active role in the realisation of those social innovations and experiments through which different actors are trying to find socially and culturally feasible ways of utilising the new information and communication technologies. Such innovations and experiments can be made both at the micro level, i.e. in connection with the implementation of specific new technological solutions, as well as at the macro level, i.e. when new kinds of socioeconomic strategies are developed in different societies in order to bring them to the forefront of today's information society developments.

Such new challenges can be tackled concretely for instance when the European Union is preparing its Fifth Framework Plan for research and technical development for the years 1998–2002. The earlier framework programmes have been oriented almost solely towards technical research and its applications, and social and cultural scientists have not had practical possibilities to participate in their realisation. Now the Union has decided that the largest thematic programme will be targeted towards the "creation of a user-friendly information society". Within this theme area the doors are opened for an increased mutual co-operation between technical research and development, demonstration activities and socioeconomic and cultural studies. European social scientists interested in studying problems of information society development should fully exploit this new historical opportunity.

REFERENCES

- Bell, D. (1973): *The Coming of Post-Industrial Society. A Venture in Social Forecasting.* London: Heinemann.
- Bell, D. (1987): *The Cultural Contradictions of Capitalism.* London: Heinemann.
- Burstein, D., Kline, D. (1995): *Road Warriors: Dreams and Nightmares along the Information Highway.* New York: Dutton.
- Cairncross, F. (1997): *Death of Distance. How the Communications Revolution Will Change Our Lives.* London: Orion Business Books.

- Castells, M. (1989): *The Informational City. Information Technology, Economic Restructuring, and the Urban-Regional Process*. Oxford: Blackwell
- Castells, M. (1996): *The Rise of the Network Society. Volume I of The Information Age: Economy, Society and Culture*. Oxford: Blackwell.
- Castells, M. (1997): *Power and Identity. Volume 2 of The Information Age: Economy, Society and Culture*. Oxford: Blackwell.
- Castells, M. (1997): *End of Millenium. Volume 3 of The Information Age: Economy, Society and Culture*. Oxford: Blackwell.
- Clark, C. (1951): *Conditions of Economic Progress*. London: MacMillan.
- Clark, J., Diani, M. (eds.) (1996): *Alain Touraine*. London & Washington D.C.: Falmer Press.
- Drucker, P.F. (1993): *Post-Capitalist Society*. New York: Harper Business.
- EC Commission (1993): *Growth, Competitiveness and Employment. A White Paper*. Luxemburg, Office of the Official Publications of European Communities.
- European Council (1998): *Proposals for Council Decisions Concerning the Specific Programmes Implementing the Fifth Framework Programme of the European Community for Research, Technological Development and Demonstration Activities: User-Friendly Information Society. Annex II: The General Outlines, the Scientific and Technological Objectives and the Priorities* <http://www.cordis.lu/fifth/src/305b-e-5.htm>.
- European Commission (1998): 'The Information Society'. <http://europa.eu.int/eng/comm/dg03/infosoc.htm>.
- Fourastié, J. (1994): *Les trente glorieuses, ou La revolution invisible de 1946 à 1975*. Paris: Hachette.
- Freeman, Ch., Soete, L. (1994): *Work for All or Mass Unemployment: Computerised Technical Change into the Twenty-First Century*. London: Pinter 1994.
- Friedrichs, G., Schaff, A. (eds.) (1983): *Microelectronics and Society. A Report to the Club of Rome*. New York & Scarborough: Mentor.
- Galbraith, J.K. (1967): *The New Industrial State*. Boston: Houghton Mifflin.
- Gershuny, J. I. (1979): *After Industrial Society? The Emerging Self-Service Economy*. London: MacMillan.
- Gershuny, J.I., Miles, I. (1983): *The New Service Economy: The Transformation of Employment in Industrial Societies*. London: Pinter.
- Giddens, A. (1990): *Sociology*. Cambridge: Polity Press.
- Giddens, A. (1996): *Out of Place. A review of Manuel Castells' 'The Rise of the Network Society'*. *The Times Higher Education Supplement* Dec. 13, 18.
- Grove, A. (1996): *Only the Paranoid Survive*. New York: Bantam Doubleday
- Habermas, J. (1963): *Dogmatismus, Vernunft und Entscheidung - Zu Theorie und Praxis in der verwissenschaftlichen Zivilisation*. In *Theorie und Praxis*. Neuwied: Luchterhand.

- Hensel, M. (1990): Die Informationsgesellschaft. Neuere Ansätze zur Analyse eines Schlagwortes. München: Verlag Reinhard Fischer.
- Information, Communication and Society (1998): Announcement of the launching of a new international journal. <http://wheelie.tees.ac.uk/CIRA/ics.htm>.
- King, M. (1998): A review of Manuel Castells' 'The Rise of the Network Society. *Development* 41:2, 93-96.
- Kumar, K. (1995): From Post-Industrial to Post-Modern Society: New Theories of the Contemporary World. Oxford: Blackwell.
- Lehtinen, J., Luotola, T. (1985): *Matka informaatioyhteiskuntaan*. University of Tampere, Department of Journalism and Mass Communication, Publications A 53. Tampere.
- Lyon, D. (1988): *The Information Society: Issues and Illusions*. Cambridge: Polity Press.
- Lyotard, J.-F. (1979): *La condition postmoderne*. Paris: Les Editions de Minuit
- Machlup, F. (1962) *The Production and Distribution of Knowledge in the United States*. Princeton: Princeton University Press.
- Marcuse, H. (1968): *One Dimensional Man*. Studies in the Ideology of Advanced Industrial Society. London: Routledge & Kegan Paul.
- Martin, J. (1979): *The Wired Society*. Englewood Cliffs, NJ: Prentice-Hall.
- Marx, K. (1968): *Das Kapital* vol. 1. Hamburg: Europäische Verlagsanstalt (originally 1867).
- Masuda, Y. (1980): *The Information Society as Post-Industrial Society*. Tokio: Institute for the Information Society.
- Masuda, Y. (1990): *Managing in the Information Society. Releasing Synergy Japanese Style*. Oxford: Blackwell.
- Meadows, D. et al. (1972): *The Limits to Growth. A Report for the Club of Rome's Project on the Predicament of Mankind*. London: Earth Island.
- Melody, W. H. (ed.) (1997): *Telecom Reform: Principles, Policies and Regulatory Practices*. Lyngby: Technical University of Denmark, Center for Tele-Information.
- Mosco, V. (1996): *The Political Economy of Communication: Rethinking and Renewal*. London: Sage.
- Münch, R. (1991): *Dialektik der Kommunikationsgesellschaft*. Frankfurt a.M.: Suhrkamp.
- Naisbitt, J. (1984): *Megatrends: Ten New Directions Transforming Our Lives*. London: Futura.
- Negroponte, N. (1995): *Being Digital*. London: Hodder & Stoughton.
- Nora, S., Minc, A. (1979): *La Société Télématique*. Paris
- OECD (1971): *Science, Growth and Society. A New Perspective*. Paris: OECD.
- OECD (1996): *Knowledge-Based Economy*. Paris: OECD.
- Porat, M.U. (1977): *The Information Economy*. Vols. 1-9. Office of Telecommunications, U.S. Department of Commerce. Special Publication 77-12. Washington D.C., May.

- Ricta, R. et al. (eds.) (1969): Richta-Report. Politische Ökonomie des 20. Jahrhunderts. Die Auswirkungen der technisch-wissenschaftlichen Revolution auf die Produktionsverhältnisse. Frankfurt a.M.: makol Verlag.
- Schumpeter, K. (1976): *Capitalism, Socialism, and Democracy*. London: Allen & Unwin (originally 1942).
- Stehr, N. (1994): *Knowledge Societies*. London: Sage.
- Stonier, T. (1983): *The Wealth of Information: A Profile of the Post-Industrial Economy*. London: Thames Methuen.
- Toffler, A. (1980): *The Third Wave*. New York: Collins.
- Touraine, A. (1969): *La Société Post-industrielle*. Paris: Denoël-Gonthier.
- Touraine, A. (1996): *A Sociology of the Subject*. In Clark, J., Diani, M. (eds.): *Alain Touraine*. London & Washington D.C.: Falmer Press, 291–342.
- Touraine, A. (1997): *Pourrons-nous vivre ensemble?* Paris: Fayard.
- Turkle, S. (1996): *Life on the Screen: Identity on the Age of the Internet*. London: Weidenfeld & Nicholson.
- USSR academy of Science (1973): *Man - Science - Technology*. Moscow - Prague.
- Weber, M. (1976): *Wirtschaft und Gesellschaft. Grundriss der verstehenden Soziologie*. Tübingen, J.C.B. Mohr (originally 1921).
- Webster, F. (1995): *Theories of the Information Society*. London: Routledge
- Williams, M. (1998): *Empire.Net*. The Red Herring Online June 1988. [wysiwyg://56/http://www.herring.com/mag/issue55/print.html](http://www.herring.com/mag/issue55/print.html).

Are We Living in the Information Society or in the Knowledge Society?

A Deeper Look at the Concepts of Information and Knowledge

ERKKI KARVONEN

Contemporary societies are characterised as “information societies” and this era is called the “information age”, as some earlier periods in human history have been called the “stone age” and the “bronze age” (cf. Castells 1996). Scholars like Peter Drucker and Nico Stehr prefer using the term “knowledge society” instead of “information society” to emphasise the crucial value of knowledge in the new economy. American economist Fritz Machlup (1962) has written of “knowledge industry”. Sociologist Daniel Bell (1973) described the emerging new economy and society as a “post-industrial society”, but later he called it the “information society”.

Bell insists that knowledge and information are the “axial principles of post-industrial society”. Alvin Toffler (1991) also claims that knowledge or information are nowadays the key to power – not money or military force. Drucker (1993) has similar ideas, when he states that “knowledge has become *the* resource, rather than *a* resource” in the economic life. Land, labour, energy and capital are still important resources for production, but knowledge is the most critical resource.

Information and knowledge seem to be central concepts in discussions on information society related issues. However, the discourses concerning these topics rarely offer a theoretically sound understanding of these concepts as such. In many cases, the concepts are used in a loose way, which leads to confusion. One of the pioneers

of the information society research, Fritz Machlup, has said that the word "information" has become "an all-purpose weaselword" that is "infelicitous, misleading, and disserviceable" (Machlup 1983, 653, 658).

One reason for this confusion in terms can be traced back to the 1940s when Claude Shannon and Warren Weaver (1949) started using the term "information" as a synonym for "signal transmission". The confusion arises from the fact that in everyday usage "information" and "knowledge" are used as synonyms, but in the technical usage "information" has nothing to do with the contents of a message, i.e. with "knowledge". When we hear the word "information", we just can't know if it refers to electronic signal transmission or if it means sharing of knowledge (instruction) in the normal sense.

The sociological discussion on information society often concentrates on the social impacts of the new information technology and does not particularly discuss the essence of knowledge and information. Sociologists think that it is not their job to think about what information is, and so they leave the task to philosophers. In fact each discipline tends to give this troublesome task to some other discipline.

An analysis of "knowledge", on the other hand, seems to be a philosopher's task, though some aspects of it are claimed by the sociologist... When I tried out the title of this study on representatives of various disciplines, many were surprised that an economist would find himself qualified to undertake this kind of research... If these things have to be explained, "Let George do it". George is always someone in another discipline. (Machlup 1962)

For instance Manuel Castell's widely celebrated massive trilogy *The Information Age* (1433 pages) pays little attention to the definitions of concepts like knowledge and information. The only definitions are given in the footnote, where Castells (1996, 17) states that "I have no compelling reason to improve on Daniel Bell's own definition of knowledge". However Bell, too, seems to pass the problem fluently (for Bell's definitions, see footnote)¹

1. Bell defines knowledge: "By knowledge I mean a set of organized statements of facts or ideas, presenting a reasoned judgement or an experimental result, which is transmitted to others through some communication medium in some systematic form. Thus, I distinguish knowledge from news and entertainment." (Bell 1982, 505-506)

The concept of information is defined by Bell as follows: "By information I mean data processing in the broadest sense; the storage, retrieval, and processing of data become the essential resource for all economic and social exchanges." (op. cit. 504).

Castells prefers the definition given by Marc Porat (1977, 2): “Information is data that have been organized and communicated”. Taken philosophically these definitions are unsatisfactory; they do not help us to understand why “information” and “knowledge” are so crucial. It is easy to agree with Frank Webster, who criticises Castells for being conceptually too vague in this sense. According to Webster Castells’ work:

Fails to identify both the characteristics of and reasons for the development of a new epoch, the information age, **because of imprecise and variable definitions of information itself**, and, associated, unclear explanations of what brings about the transition. (Webster 1997, 83; emphasis mine).

Also Nico Stehr claims that the central concept of knowledge is essentially treated as a “black box” in discussion about the post-industrial society:

A look at the conceptions of knowledge employed by those who have elevated knowledge to the new axial principle of modern society indicates that these theorists pause but briefly to consider the social nature of knowledge, particularly of scientific knowledge. Although many and elaborate definitions of knowledge are offered, an equivalent effort toward a theoretical analysis of the decisive phenomenon “knowledge as such” is not thought necessary. The new qualities of scientific knowledge and its social consequences are merely postulated. In short, knowledge is essentially treated as a black box. (Stehr 1994, 92)

In the following, I try to develop more theoretical depth and clarity for the understanding of information and knowledge. I also try to find answers to questions like: Why is information so crucial that the whole era is named after it? What makes knowledge valuable? On what is the value of knowledge based? How is “information” related to “knowledge” and “communication”? Is information a synonym for knowledge or should we make a clear distinction between them? Is our society a *knowledge society* or merely a *society of advanced signal transmission*?

THE DIFFERENCE BETWEEN KNOWLEDGE AND INFORMATION

Etymological roots for terms 'information' and 'knowledge'

Words "information" and "knowledge" are often used in interchangeable ways in ordinary speech. In many cases words have almost the same meaning. However "*Information*" is normally linked with telling somebody something, giving advice, instruction, teaching etc. i.e. transfer of knowledge, while "knowledge" does not have such a connection with communication. This distinction echoes Fritz Machlup's (1962, 15) early, simple definition: "Information is the communication of knowledge".

The most familiar context for the word "information" is information desk, where you can ask advice about how to find places etc. For example: The *information desk* people *told* me where the office is, and now I *know* its location. The act of informing gives me knowledge of how things are in the world.

It is useful to study the etymology of these concepts. The word 'information' was developed in medieval scholastic Latin to cover the meaning of the Greek word "morphe" (form, shape). Aristotle used this term when characterising perception: in the act of perception man receives only the form (morphe) of a tree, not the substance (hyle) of a tree (wood). Therefore perception was something like using a signet ring to stamp a certain figure on a wax-sealed letter. Aristotle insisted it was only the form of the signet ring which was significant, and the material (substance) used to make the signet ring was irrelevant. It did not make a difference whether the stamp was made of bronze or gold, because only the form of the stamp was transferred into the wax and not the substance of the stamp. In scholastic philosophy, this Aristotelian notion turned to the idea of "intentionality", i.e. something existing as an idea in mind, but not necessarily in material reality.

Developed in this fashion the medieval Latin meaning for information was "the action of 'informing' or forming the matter". Information was used in the sense of "giving a form or character to something". Particularly the matter to be formed was the human mind: "formation or moulding of the mind or character by means of training, instruction, teaching". (Oxford English Dictionary).

This archaic meaning of information as the *formation* of matter is still usable today. Notice that in this sense the word does not implicate any meaning or content to be transferred, but only certain “form” or certain order. So, this old meaning for information is compatible with Shannonian information theory. The television set, for example, is capable of receiving some transmitted organisation of light and black dots and showing this organisation (picture) on the screen. A computer can perform different types of operation for digitally organised forms, but this does not mean that the computer has consciousness or that it “knows” something. Furthermore, we can imagine a futuristic piece of furniture, which is made out of amorphous material capable of taking different shapes. This matter could receive digital information e.g. for taking the shape of a baroque chair, or on another day the shape of a table.

What, then, is the linguistic meaning of “knowledge”. The word “knowledge” is etymologically related to the Greek words “gignôskein” and “gnôsis”, which were articulated in ancient Latin as “noscō”, “gnoscō” and “cognoscere” (a root for “cognition”). In French the word has the form “connaitre”, there is also the word “savoir” for knowledge. In German there are several verbs: “können” and “kennen”, and also “wissen”. By the way the Finnish word for knowing is “tietää”, which has the etymological meaning of “to know the way to somewhere”, to know how to reach some place or end. Actually, the Finnish word has the meaning “know-how”.

The meaning of the “knowledge” -related words in the Indo-European languages is something like: “to be *familiar* by experience or through information or report” or “to have *learnt* by committing to *memory*”. So, knowledge is something you have in your mind or in your memory, i.e. stored electronically and chemically in the web of your neurones. We can extend the notion of memory to external memories like the picture drawn on the wall of the cave or on paper, the word uttered, legend told or sung, note written, book printed, film exposed, tape recorded, file saved on a disk or hard disk etc.

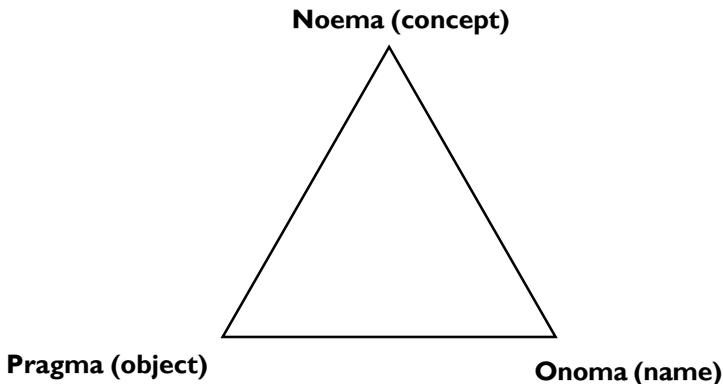
It seems that knowledge has to exist as some organisation of some matter. However, this could work as the characterisation of information, but it is not a sufficient definition of knowledge. We can talk about knowledge only when this stored organisation somehow describes reality or refers to something other than itself. This reference, or standing for something else leads us to treat knowledge as a semi-otic sign, a symbol, a mark. A signifier exists as a sign only for crea-

tures who are able to interpret its meaning. Therefore knowledge can only exist to the knower or interpreter, but of course the interpreter need not necessarily be a human knower, rather any living organism and even an artificial intelligence program could know in this sense.

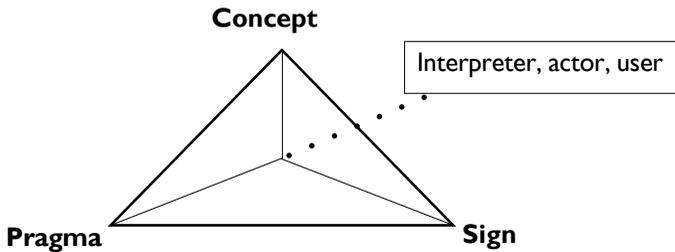
Semiotic levels of information

In Saussurian sense a sign consists of two linked components: *signifier* (the material bearer or vehicle) and *signified* (the content, concept, image of mind). Ferdinand de Saussure does not particularly thematise the sign's relation to the real world. On the contrary Charles S. Peirce, another "founding father" of semiotics, takes into account this relation called reference or signification. Peirce begins with the classic triadic sign conception: name (onoma), concept (noema) and object (pragma) and then renamed the components as sign, interpretant and object.

We should take seriously the Greek word for objects (pragma): it has a meaning of worldly objects encountered in practical action. So the "essence" of objects depends on and is related to the activity carried out. For example a certain object is a "pen" for those who use it in writing, but it could be a "weapon" for those who use it for aggressive purposes. That is to say: knowledge is relational by nature, it arises from and belongs to certain kind of practical encounter with the world.

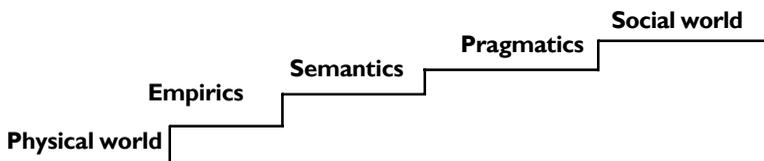


The FRISCO (1996) – group of scholars takes the classic triadic sign relation and its articulations made by Peirce and Morris as a point of departure. The group, however, finds the triangle missing one essential factor: namely the actor who is interpreting or using a sign. So this component is added to the figure to make a tetrahedral model for semiosis. The actor is in relation to sign, to concept and to *pragmata*.



Doede Nauta (1973) and Ronald Stamper (1973, 1996a and b) distinguish different levels of information or semiosis. These semiotic levels constitute “semiotic ladders” from the physical world to the social world. According to the FRISCO -group these levels or layers are: physical level, empirics, syntactics, semantics, pragmatics and social level.

“Semiotic ladders” of information:



The reality could be thematised in each of these levels. Every level has its own adequate theoretical framework to describe and explain the distinguishing characteristics of this level of information. There are processes which are best explained by physics and which do not need theories from upper levels. Information processes in the human world can be understood as “layered”. Scholars can choose on which

level they study their subject, they can even choose the level of physical description when trying to explain the processes of human society. Of course the physical description is not a sufficient description of a human being, which needs to be understood in all of the above mentioned levels if an adequate description is desired.

In a similar fashion Nauta distinguishes levels of potential information, implicit, concursive, discursive, syntactic, semantic, pragmatic information. Nauta insists that the Shannonian mathematical communication theory, or "information theory" is working at the level of zero-semiosis, i.e. it is a theory for potential information or information capacity. It describes only the infrastructure for signal transmission, rather than saying anything about the contents to be transferred. Here Nauta differs from many other commentators, who think Shannon's theory is a theory for the syntactic level. For Nauta, Shannon's theory is not yet a theory for proper semiotics, but a "zero-semiological" physical theory. We can say that this is a theory for "information" in the archaic sense: the transmission of organisation of sign-vehicles or mere forms that could possibly carry meaningful messages or knowledge. Stamper and the FRISCO -group state that Shannonian theory is working mainly in the "empirics" level.

To properly understand "information society" related issues we should apply theories from semantic, pragmatic and social levels. These are the levels on which we can talk about the contents of information, meanings and knowledge. The semantic level is the first level on which we can thematise the question about knowledge. The pragmatic level is the one where we can explain the value (use value) of knowledge and the social level is the one we need to understand the exchange value of knowledge.

In the following, I will characterise Shannonian mathematical communication theory and after that I introduce theories of semantic, pragmatic and social levels.

THE MATHEMATICAL THEORY OF INFORMATION

In 1948, electrical engineer Claude Shannon of Bell Telephone Laboratories published his famous article “The Mathematical Theory of Communication” (1963). However his followers prefer talking about “the mathematical theory of *information*”. Before Shannon and Weaver, Nyquist (1924) and Hartley (1928) made seminal studies on “information”. The cybernetic theory developed by Norbert Wiener in the 1940s laid the theoretical basis for Shannonian theory. This main branch of electrical engineering theory for communication is sometimes called the Hartley-Wiener-Shannon theory of information.

Shannon gave the word “information” a special technical definition that divorced it from its common sense usage. In Shannon’s theory, information is no longer connected with the *semantic content* of statements or with *meaning*.

The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point. Frequently the messages have meaning (...). These semantic aspects of communication are irrelevant to the engineering problem. (Shannon 1963, 3).

So, engineers are concerned primarily with the correct transmission of signals, or (electric) representations of the messages; they are not commonly interested, professionally, with the purposes of messages. Referring to our earlier discussion on archaic meaning for word information, we can say that the question here is about the accurate transmission of *form*, not any content.

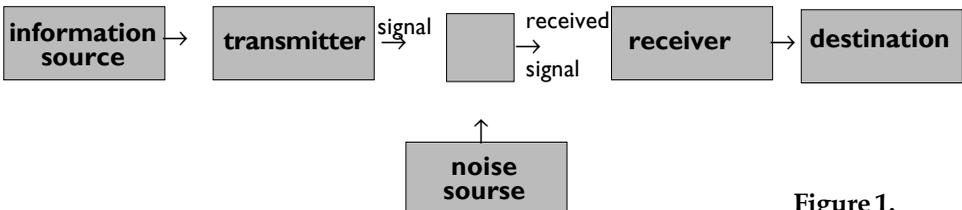


Figure 1.

A basic idea in information theory is that information can be treated very much like a physical quantity, such as mass or energy. A homely analogy may be drawn between the system in Figure 1. and a transportation system; for example, an information source (user who generates the message) is like a lumber mill producing lumber at a certain point. The channel in Figure 1. might correspond to a conveyor system for transporting the lumber to a second point... (Shannon in Encyclopedia Britannica article on the Information Theory)

Here information is understood as communication, which in turn is understood in terms of transportation of entities like pieces of lumber transported by a conveyor belt. The first problem for the engineer is logistical: how efficiently the channel can be used and what is the best way to “pack” transported entities. The second problem is accuracy of reproduction or forming a copy mentioned earlier. By the way, this second problem is not easily understood with the conveyor belt analogy, because a conveyor belt does not reproduce a copy of an original at the receiver end of the channel. This problem became acute in communication technology only after electrical transmission was invented (telegraph, telephone, radio etc.). For instance in printing technology the copy of the message was made mechanically at the sender end and then physically carried over the distance. So, printing technology does not encourage the development of a transmission theory, but electrical communication technology does.

The Shannonian understanding of information is problematic in relation to everyday understanding of information as instruction or communication of knowledge. People normally think that information always has a semantic content or meaning, but from now on Shannonian theory need not have any meaning at all. For Shannon information is anything that can be coded and transmitted. It could be the most revolutionary chemical formula or hard-core porn or just gibberish. Anything goes.

Properly, we should call this theory a “Statistical Theory of Signal Transmission”. Instead of speaking about the information society at this level, we should rather talk about *The Signal Transmission Society*. Clearly, we live in this kind of society of advanced signal transmission.

This is not to say that the Shannonian theory of information is worthless. On the contrary, it has been very fruitful and has made possible enormous advances in electronic engineering and commu-

nication technology. At the heart of this conception lies a fruitful theory of statistical physics for *entropy*.

Shannon's formula for information is an analogy of Boltzmann's well known formula for thermodynamic entropy. Both refer to the notions of probability and improbability from statistical physics. The so called "white noise" appearing on television screen when it is totally untuned, is the *probable* state of affairs; but the order of signals chosen by a sender to make a meaningful message is a very *improbable* arrangement in the world. The problem here is: how to get this very improbable organisation to be accurately reproduced at the receiver's end? How to increase the probability of the desired organisation to be reproduced in the desired way in another receiving device?

The famous second law of thermodynamics states that the amount of entropy in a system is increasing. This means that the improbable complexity or higher order tends to reduce down to the more probable lower degree order - namely, if nothing is done to maintain the higher order². In this sense an electrical engineer is fighting against the entropic tendency of reduction back to more probable states of order. This fight is by no means only for the engineer, but it is actually a necessary task for any living organism on earth. Life itself and human society are so improbable and non-entropic (negentropic) phenomena that they need to be continuously maintained or reproduced.

In the following, we see how this probability theory could be used in the semantic level of information. At this level we can study how the transferred signals depict the world or how they carry meanings.

THEORY OF SEMANTIC INFORMATION

Yehoshua Bar-Hillel and Rudolf Carnap (1952/1964) developed a theory for semantic information, which concentrates on what a proposition expressed by linguistic sentence is telling about the world. The description of the world expressed in the sentences could be more or less accurate. Let's have a look at two sentences:

2. Some scholars like Wicken (1988) prefer using the term "complexity" when talking the about order of closed systems (living organisms, society etc.) instead of using the term "entropy" which is rather a term for the universe as a whole. It is also said that thermodynamics concerns statistical disorder, not organisational complexity and that we are actually in need of an adequate theory for organisational complexity.

1. The enemy attacked at dawn.
2. The enemy attacked in battalion strength at 5.30 a.m.

It is clear that the second statement is more precise or contains more semantic precision than the first. So, there is more information in the latter one, it is more informative. This is intuitively clear, because the last sentence gives more details of the case. However, Carnap and Bar-Hillel did not use this common sense understanding, but they preferred to define the amount of information negatively.

Negative definition is not very often used in everyday reasoning, but in philosophy it has been crucial. It was philosopher Baruch Spinoza who stated that *Omnis determinatio est negatio* i.e. that every definition is a negation, exclusion of something. According to Carnap and Bar-Hillel the amount of information expressed in the sentence h depends on how many possible state-descriptions in language L it *excludes*.

If the sentence excludes none of the descriptions possible in the used language, then it gives no information. If somebody says that some particular object is black or white or green or any colour recognised in language, then the informant does not lessen our uncertainty of what colour this object really is. The same is true when the informant excludes all the possible descriptions and do not agree on any description. Of course this could be due to the restrictions of used language.

Let's consider a few example sentences:

Example 1.

At the information desk I could ask "where is classroom seven?"
And I could get different answers, e.g.:

1. The informant might say "It could be there, or there, or this direction" (pointing in different directions). In this, the informant excludes *nothing*, and all alternatives are left open. Normally, we would say that this person does not really know where the classroom is or he/she is not willing to tell me the fact he/she knows.
2. In the second case the informant says: "It is certainly not there, but it could be there or there". This answer is more informative, because it excludes one direction and leaves only two alternatives

to try. We can say that he or she knows *something* and this answer practically helps me to find the classroom.

3. In the third case the informant states that: "It is in that direction, not there and there". This answer is the most informative of the three, because it excludes two possibilities and leaves only one alternative to try. In this case, we can say that he or she really seems to know how things are. Of course this claim could prove to be right or wrong. However, the question of truth is not considered in this semantic theory.

Example 2.

Imagine that you have one thousand doors in the corridor and then you want to know which one is Mr X's room. If the informant says that this room is somewhere in the middle of the corridor, then he gives you some information. This information is better than nothing, because now you need not check the ends of the corridor and you will probably find the room sooner and so save time and other valuable resources.

In the second case, the informant clearly insists that Mr X could be found in the room number 648. This answer is very informative, because it excludes 999 alternatives. This helps you much, because if you don't know the right alternative, then you have to try all of those doors. But if you come to know it, then you can immediately go to the right door, saving your time and energy.

Example 3.

Consider a strongbox with a combination lock . Your task is to open the box, but you don't know the right combination. In that case, you have to try and try until you find the right combination, and this will probably take several years, because the probability to find the right combination is so low. What happens if somebody tells you what the number is? Needless to say, you can open the box in a few seconds instead of spending the rest of your life trying to open it. In this case the saving of time is striking: several years versus a few seconds.

These examples show the importance of the semantic information in practical situations and this leads us to the practical level of information, to the use value of information or knowledge. However, Carnap and Bar-Hillel restrict the domain of their theory, so that they

are not willing to go to practical questions and are also reluctant to talk about truth values. Nauta (1973) states that this kind of limitation is an artificial abstraction.

However, before going to the practical information level there is a need to present two commentaries on semantic information. The first comment was made by Bar-Hillel himself, and it states that the concept of semantic information intrinsically has nothing to do with communication or transmission: we can simply have the information in our brains. But of course we can get messages that update our knowledge of the world.

The second comment deals with the question of truth which was neglected by Carnap and Bar-Hillel. I will soon discuss how the theory of semantic information could be applied to reinterpret the so-called classic definition of knowledge presented in Plato's *Theaetetus*-dialogue. In Greek, this definition goes as follows: *Alethes doxa meta logu*. And this could be translated in different ways, such as "true belief with an account", "true belief plus good reasons for believing it" and "true, justified belief".

Ilkka Niiniluoto (1989), for instance, begins with this definition by stating that knowledge is belief with two criteria: 1) it has to be true, and 2) there have to be good explanations about the reasons why this is so (theory, evidence, experience etc.). Therefore, the truth or the correspondence of a proposition to reality is not sufficient criterium for real knowledge, because a pure guess could prove to be right. So, the informant would have to tell how she or he came to claim what was claimed. If he says that he simply saw it from the tea leaves, then the claim cannot achieve the status of scientific knowledge.

Secondly, Niiniluoto develops the classic definition by replacing the word "belief" with "semantic information". So we have a definition of knowledge like this: *Knowledge is 1) a statement that contains semantic information (the exclusion of possibilities), 2) which is true and is 3) derived from reasonable theory or evidence.*

Notions of truth and accountability have been under discussion for hundreds of years, and so also Niiniluoto's notions of them could be challenged in different ways as I have discussed elsewhere (Karlsson 1997). Here we can only say that Niiniluoto, as a philosopher belonging to the philosophical tradition of scientific realism, is not eager to thematise the pragmatic level of information. Pragmatist ar-

guments are seen too “subjectivist” and “relativist” for realist philosophers.

PRAGMATIC INFORMATION

Doede Nauta (1973, 220) insists that a theory of semantic information should be characterised as “zero-pragmatic” like the Shannonian theory was “zero-semiotic” in relation to proper-semiotic levels. Shannon’s theory did not describe the actual communication of messages, but the potentiality and possibility of transferring messages. Similarly, semantic theory is correlated with the precision of *potential action* on *any* recipient. Nauta states that the semantically more informative sentence contains more *intelligence for potential action*. The sentence “A train leaves from King’s Cross station for Edinburgh at 10 a.m. today” offers better conditions for rational action than the sentence “A train will leave London for Edinburgh today”.

What is then pragmatic information? Nauta (1973, 222) defines pragmatic information as “*that which reduces uncertainties relevant to a purposeful state*”. A purposeful state is the goal which an actor is reaching for. Those goals may vary, or an actor can change his or her aims. “To reduce or decrease uncertainties” is the same as “to increase certainty, increase the probability of achieving one’s ends”. Here we are talking about the pragmatic value of information for purposeful action. This is stated in Kharkevich’s (1960) theory concerning the value of information (see Sharov 1992).

Strong and Walker (1987, 21) have the same idea when explaining the value of information. They state that “the value of information stems from the ability of the individual to revise his action choice in the light of his revised probabilities”.

Now we can define *the value of information as the increase which it produces in the probability of achieving some purpose*. Notice that not only the information can increase the probability of achieving the goal, but resources like energy as well are critical for successful activity. It is important to note that the value of information can also be of negative value, so that the probability of attaining the purpose decreases. If the dissemination of misleading information is purposeful, then we can talk about *disinformation*.

Let’s now return to the example of the strongbox with a combination lock. In this case one’s aim was to open the door. Without prag-

matic information, i.e. knowing the right combination this would be an extremely improbable accident and so the probability of achieving the goal would be minimal. However, if the actor received some information or instruction, the probability for successful action would increase significantly.

The exclusion of possible alternatives given by information means exclusion of trial and error or research and development efforts. This means greater effectiveness and economy of resources. So, knowledge makes some actors more effective in comparison with those actors who don't know or don't have the "know-how". The knowing persons or knowledgeable organisations are in a sense "upgraded", and so they are also more dangerous than competitors. Knowledge or pragmatic information means better competitiveness.

Living organisms, human beings, society and technological products for instance represent very improbable high order or complexity (negentropy). The spontaneous emergence of a mobile phone in nature is extremely improbable. So, there has to be lots of 'know-how' or information for making this kind of product.

We can estimate that the complexity of products and human systems are increasing all the time. Therefore we need more and more knowledge to increase our opportunities to achieve our aims. Our society is becoming more and more knowledge-intensive.

At this pragmatic level of information or knowledge, we could explain the *use value of knowledge*. To speak about the *exchange value of knowledge* we should step up one more level to the social world level.

SOCIAL AND ECONOMIC LEVEL

According to the sociologist Georg Simmel (1908, 1971) human society is best understood as a process of "sociation" (Vergesellschaftung), where people enter into mutual interaction (Wechselwirkung) or exchanging the valuable things they have or the favours they can do:

Society exists where a number of individuals enter into interaction, which arises on the basis of certain drives or for the sake of certain purposes. (Simmel 1971, 23)

What drives actors (people, organisations) into interaction is the certain goals they want to achieve and needs they want to satisfy. As

we have learnt earlier, knowledge is critical to purposeful action, because it significantly increases the probability to attain one's ends. So, one sort of exchange between people is the exchange of know-how. To put this simply: somebody who knows helps me to achieve my aim, and reciprocally I repay the favour somehow.

Simmel views exchange as the purest and most concentrated form of significant human interaction. In fact, much action that may initially appear to be unilateral actually involves reciprocal effects (i.e. is a form of exchange) and generally all interactions may more-or-less be conceived of as exchange. Economic exchange – regardless of whether it involves material objects, labour, or embodied labour – entails the sacrifice of some good that has potential uses for others. Knowledge, however, is a different kind of good. When sharing it with other actors, you don't lose the knowledge you have. But the exchange value of your knowledge does lessen: if others already know the same as you, then they are not willing to exchange your knowledge for anything else they command.

Where there is exchange, there is also a market. In the market people controlling some goods or skills exchange their good for somebody else's good. The actor must "own" some exchangeable values to operate successfully in the market. Actors have to have some "exchange value", for instance the skills or knowledge that are needed by other actors in the market. If you don't have such a skill, you are out of the (labour) market.

Services are said to be very essential in the post-industrial economy. Services can be defined as work that helps other people achieve their "purposeful states" or ends. Those purposeful states are anything that we want or prefer. People would like to have a good feeling, and entertainment services or a bottle of beer could fulfil that desire.

Purposeful states are improbable arrangements in the world and they do not appear spontaneously: some work is needed to achieve them. For instance, cleaning is a job which helps to maintain, to sustain, or reproduce a desirable order in a house. And teacher's work is to help young people to get desired good jobs or increase their probability to get those jobs. The knowledge work or intelligence is the work that increases the probability of any successful action. Hopefully the contributions in this book could give students better chances to achieve their goals and so the work here has been value-additive by nature.

WE LIVE IN AN INFORMATION SOCIETY AND IN A KNOWLEDGE SOCIETY

The answer to the question of whether we do live in an information society or in a knowledge society is – as we have seen – that we live in both of them. However this does not mean that information society and knowledge society are the same thing.

The contemporary world is really a world of advanced communication technology, i.e. a society of advanced signal transmission technology. This is the information society in the information theoretical sense.

At the same time, this is also a world of specialists and experts. They have special knowledge so necessary for society, that the system will not run a single day without their contribution. This knowledge is needed for communication technology and the transmission of messages. So the *knowledge society* is a *condition* for this kind of *technological society*. And vice versa, knowledge has a connection with technology, and not only with communication technology. For instance a microscope lets us know things that we could previously only guess at.

We have to keep in mind that thus far every existing society has been a *knowledge society*. People had knowledge of how to find something to eat and how to catch fish etc. Every society has also been an *information society*: people have transmitted messages, they have had communication and community. Children were taught, legends were told at campfire, drums served as a jungle-radio, smoke signals carried messages over the distance.

Nowadays we live in a society where specialisation and division of labour is highly developed. There are millions of specialists who are devoted to solving special problems and these specialised knowers are connected together with communication technology: we live in a network society. This network makes it possible to learn from each other's experiences, failures and successes. At least in theory every single knower can give his or her knowledge to the common knowledge-base. By communication, every single person comes to know more than by living separately.

Let's consider our earlier example: the problem of opening the combination lock of a strong-box. Suppose the task is divided between one million people who start trying to find the right combination. If they have to report their success to others, when one hits the

right number, then all the people will to know it. They can concentrate on solving the rest of the numbers. This way the human network has enormous problem solving power, just like connected computers can constitute very effective computing power. We can guess that the strongbox will be opened in a few hours instead of several years of individual effort.

The strength of the human race is in its social nature and in its ability to communicate with a semantically informative language and this kind of communicative community could be very effective. Many eyes see more than just one pair of eyes. Millions of eyes see better than just one pair of eyeballs. Millions of people are nowadays connected together with communication technology to share their knowledge. Millions of detectives and innovators are trying a huge variety of possible solutions; millions of specialists are trying to open the strong-box of nature. All this is boosted by contemporary capitalism with sharp economic competition that drives entrepreneurs to make inventions. However, the capitalism itself also hinders the free flow of meaningful knowledge. If knowledge is *the* critical resource for success and competitiveness, then knowledge is not shared with competitors or enemies.

Anyway, more and more knowledge is accumulating and this accumulation of knowledge is an evolutionary power. Any system involved in the evolutionary process could be characterised by “genotype” and “phenotype”. In biology genotype is the genetic code that controls the development of the bodily structure (phenotype). The making of an organism can be seen as a translation of digital DNA code to the structurally complex adult “analogic” form (Hoffmeyer and Emmeche 1991). Sharov (1992) states that a living organism exists in two ways: ideally and materially. The genotype is a sort of ideal plan or the “know-how” to make the material phenotype, i.e. genotype is the ability of a system to reproduce its own phenotype and phenotypes of other objects. The genotype of higher animals and man has two parts: 1) a biogenetic part (DNA), and 2) a *noogenetic* part, which is transmitted to offspring by a learning process. The human evolution is mainly noogenetic in character. (Boulding 1978).

More and more knowledge is accumulating in the human noosphere (culture). This knowledge is the ideal part of human existence and the technological devices are one material outcome of this ideality. The more knowledge we have, the more we are able to do.

This leads to a cultural and technical evolution which is a *million times faster* than natural evolution (Rothschild 1992). The pace of change is just accelerating. Where does this acceleration lead? To a catastrophe or to a better society?

We are in the midst of great historic transition into the Age of Biotechnology. This means that man knows how the living organisms are genetically encoded and that man is now able to genetically engineer synthetic living creatures. Jeremy Rifkin (1998) says that the computer revolution is only a prelude to a far more significant change taking place in the global economy. During the Biotech Century our way of life is likely to be transformed more fundamentally in a few decades than in the previous thousand years.

REFERENCES

- Bar-Hillel, Y. (1973): Language and Information. Selected essays on Their Theory and Application. Reading, Massachusetts: Addison Wesley.
- Bell, D. (1973): The Coming of Post-Industrial Society. A Venture in Social Forecasting. New York: Basic Books.
- Boulding, K. (1978): Ecodynamics. A New Theory of Societal Evolution. Beverly Hills and London: Sage.
- Castells, M. (1996): The Rise of The Network Society. The Information Age: Economy, Society and Culture, vol. I. Oxford: Blackwell.
- Drucker, P.F. (1993): Post-capitalist Society. Oxford: Butterworth-Heinemann.
- FRISCO -report (1996): A Framework of Information System Concepts. The IFIP 8.1. Task Group FRSCO. (<http://www.wi.leidenuniv.nl/~verrynst/frisco.html>)
- Hartley, R.V.L. (1928): Transmission of Information. Bell System Technical Journal, July 1928, p. 535.
- Hoffmeyer, J. and Emmeche, K. (1991): Code-Duality and the Semiotics of Nature. In Myrdene Anderson and Floyd Merrell (eds.): On Semiotic Modelling. Berlin and New York: Mouton de Gruyter.
- Karvonen, E. (1997): Kohti relationaalista tietökäsitystä. [Towards a Relational Conception of Knowledge] In Stachon, Kari (ed.) Näkökulmia tietoyhteiskuntaan [Approaches to Information Society]. Helsinki: Gaudeamus.
- Kharkevich, A.A. (1960): On the Value of Information [in Russian]. In Problemy Kibernetiki [Problems of Cybernetics] vol. 4., 54–58. Moscow: Nauka.
- Machlup, F. (1962): Production and Distribution of Knowledge in the United States. Princeton: Princeton University Press.

- Machlup, F. (1983): *Semantic Quirks in Studies of Information*. In *The Study of Information. Interdisciplinary Messages*. Ed. by F. Machlup and U. Mansfield. New York etc.: John Wiley & Sons.
- Nauta, D. (1972): *The Meaning of Information*. The Hague and Paris: Mouton.
- Niiniluoto, I. (1989): *Informaatio, tieto ja yhteiskunta. Filosofinen käsiteanalyysi*. [Information, knowledge and society. A Philosophical Concept Analysis] Helsinki:Valtion painatuskeskus.
- Niiniluoto, I. (1987): *Truthlikeness*. Dordrecht: D. Reidel.
- Nyquist, H. (1924): *Certain Factors Affecting Telegraph Speed*. *Bell System Technical Journal*, April 1924, p. 324.
- Porat, M. (1977): *The Information Economy: Definon and Measurement*. Washington D.C.: U.S. Department of Commerce.
- Rifkin, J. (1998): *The Biotech Century. Harnessing the Gene and Remaking the World*. New York: Putnam Books.
- Rothschild, M. (1992): *Bionomics: Economy As Ecosystem*. New York: Henry Holt and Company.
- Shannon, C. & Weaver, W. (1949/1963): *The Mathematical Theory of Communication*. Urbana: The University of Illinois Press.
- Sharov, A. (1991): *Biosemiotics: Functional-Evolutionary Approach to the Analysis of the Sense of Information*. In T.A. Sebeok and J. Umiker-Sebeok (eds.): *Biosemiotics. The Semiotic Web*. New York: Mouton de Gruyter. pp. 345–373. (also available: <http://www.gypsmoth.ento.vt.edu/~sharov/biosem/txt/biosem.html>)
- Simmel, G. (1908): *Soziologie. Untersuchungen über die Formen der Vergesellschaftung*. Berlin: Duncker & Humblot Verlag.
- Simmel, G. (1971): *On Individuality and Social Forms. Selected writings*. Chicago: University of Chicago Press.
- Stamper, R. (1973): *Information in Business and Administrative Systems*. London: B.T. Batsford.
- Stamper, R. (1996a): *Signs, Information., Norms and Systems*. In B. Holmqvist etc. (eds.): *Signs at Work*. Berlin: De Gruyter.
- Stamper, R. (1996b): *Organisational Semiotics*. In F. Stonewell and J. Mingers (eds.): *Information Systems: An Emerging Discipline?* London and New York: McGraw-Hill.
- Stehr, N. (1994.): *Knowledge Societies*. London etc.: Sage publications.
- Strong, N. & Walker, M. (1987): *Information and Capital Markets*. Oxford: Basil Blackwell.
- Toffler, A. (1991): *Powershift. Knowledge, Wealth, and Violence at the Edge of the 21st Century*. New York etc.: Bantam Books.
- Webster, F. (1997): *Is This the Information Age? Towards a Critique of Manuel Castells*. City 8, December 1997:71–84.
- Wicken, J. (1988): *Thermodynamics, Evolution, and Emergence. Ingredients for a New Synthesis*. In *Entropy, Information, and Evolution. New Perspectives on Physical and Biological Evolution*. Cambridge, Mass.: MIT Press.

Narratives and Rhetoric of the Information Society in Administrative Programs and in Popular Discourse

JARI ARO

This chapter consists of three parts. First, I comment the relation between the debate on the Information Society and a discourse on technology. Second, I illustrate the official rhetoric on the information society by making a short analysis on two Finnish and one European Commission committee papers. Finally, I touch on the public debate on the information society in Finland and raise some questions regarding its moral nature.

A COMMENT ON THE RHETORICAL APPROACH TO THE DEBATE ON THE INFORMATION SOCIETY

Why study the language use in the debate on the information society? Because by analysing the language use, we can find out which values and attitudes underlie different conceptions of the information society. Rhetorical analysis can also simply point out the central themes in our discourse on the information society. It can also illustrate the positions that are reserved for different actors in various conceptions of the information society. For example, what roles are reserved for citizens, for civil society and its communities and organisations, for public administration and for markets. In a way, the debate and discourse on the information society function as mirror which reflect our hopes and fears for the future society. So it is not a neutral conception.

Quite the contrary, arguments and conceptions on the information society are always acts in our social world. Their intention is to open social reality and reproduce it from some perspective to the intended audience.

In the following my intention is to develop some underlying themes and structures in the debate on the information society. I use tools mainly from the so called new rhetoric when I study the argumentative structures in this debate. I also use the so called Parisian version of semiotics, that is theories of semiotics by A.J.Greimas (Greimas & Courtes 1982). I describe the narrative structure of various official strategy papers and of popular debate on information society. I intend to give an impression of the themes that have been actively debated in Finnish culture and society in connection with the information society. My materials are mainly from the Finnish case, but also from the European Commission documents. I think that it is interesting to make some comparisons between them. But as you will find out, the themes and topics are quite alike in both cases.

ON THE TECHNOLOGICAL NATURE OF THE DEBATE ON THE INFORMATION SOCIETY

The information society has become a central concept in our daily speech about social affairs. It functions like a prism – everything in our society and culture is seen through the information society. In a way, the information society is a catchword, which describes how our society is currently changing. It has the capacity to reflect our hopes and fears and this is what makes it interesting for us.

The discourse on the information society is, of course, speech about technology. You can see this by watching television news or by browsing newspaper articles. Whenever the topic is somehow related to the information society the common imaginary is often technology. There is always an image of a computer screen or pictures of people around some technical apparatus doing something related to technology. Furthermore, the advancement of information society is commonly measured by technology. I for example have the privilege to be a citizen of the nation that has the highest mobile telephone density in the world. Another indicator of the development of the information society is the number of computers connected to information networks in a particular area.

But the discourse on the information society is speech about technology in a deeper and more fundamental aspect. Namely, changes in our social reality are often seen as results of the technological change. In its crude version this technological determinism describes technology – and also the economy – as independent factors and forces in the social world. The changes in technology and the economy are seen as forces that move the rest of society. If social problems arise as society changes, they are due to the culture lag of social processes and structures that have not responded rapidly enough and followed the change in technical and economic structures. There are also more refined versions and visions of the interaction between technology and society, where technology is seen to be socially embedded. Anyhow, even this kind of approach seems to revert to the understanding that technology is a force that can mould and shape the social structure. If you look, for example, at the European Commission report “Building the European information society for us all” (1997), you can see, that the high-level expert group explicitly rejects the notion of technology as an exogenous variable to which society and individuals must adapt. However, when they present their own analysis of the central policy challenges, they all start with a notion of information and communication technology and its impact on the topic at hand. So there is a contradiction between what is said about writers’ intentions and what is really done and expressed in the text and analysis.

My intention here is not to deny that technology has the capacity to change social structures. What I am concerned about here is that there are not many analyses where technology and social systems are seen as actors and forces that together form systems and networks of mutual interaction and influence. (see e.g. Latour 1996)

The debate on information society is a special case within a more comprehensive debate on technology. In our modern western culture, we have an ambivalent conception of technology. On the one hand, technology presents itself as a great liberating power. It holds the promise of wealth and well-being. It is also understood as a great levelling mechanism because it increases communication and in this way brings separate social groups closer to one another. On the other hand, technology is a destructive force that threatens our civilisation.

This ambivalent attitude toward technology is clearly visible in the debate on the information society. Technology itself is usually defined as a neutral instrument or a means to reach some end. This is already a dubious statement, because we have good reasons to claim

that a certain kind of technology always carries with it the “way of life” and a connection to the social systems where it was developed. For example it is rational to use cars as means to transport things and humans from one place to another. But in the long run this is not possible without a network of gasoline stations and repair facilities. This comes about when society changes into a “society of automobiles” and it is no longer a neutral technical question of reaching some ends. In the same way, new information and communications technologies carry with them some forms of a technical way of life, such as the need for electricity to make your computer function or the basic skills of reading and writing. Usually the requirements for the implementation of new technologies are already in place, and they do not need to affect the social environment in some spectacular way. But still there are some explicit or implicit requirements that this technology needs in order to function. And because they are not always explicit, this is a question that should be studied whenever a new technology is imported and implemented into some social environment.

In the debate on the information society technology is described by using the concepts of challenge and threat or danger. (This vocabulary comes from the so-called SWOT-analysis, where the intention is to calculate the strengths, weaknesses, opportunities and threats a certain actor has in its position.) Technology is a challenge or promise, because through it, it is possible to obtain many kinds of social goods, such as new information, skills, wealth, personal and national advantages. Yet, technology is a threat or danger, because it can cause various kinds of social risks, problems, inequality, surveillance and control, and a new type of criminality as well.

While technology is both a liberating and destructive force, its contradictory character needs to be solved somehow. Usually, the answer to this problem is comprehension of the “appropriate use of technology”. The primary topic in critical and political debate on the information society is this “appropriate use of technology”. Using Vladimir Propp’s (1984) terminology, one can say that it fulfils the function of a magical device or a magical tool in the discourse on the information society. By finding this mysterious and hidden “appropriate use of technology”, one can maximise the beneficial consequences of the information society and minimise its unfavourable results. So, it is possible to interpret the whole discourse on the information society in its deep mythical level, as a tale of the quest for this hidden device.

Interestingly enough, this problem has a double technological character. Information technology as such is a magical device, which by its sheer presence and use affects almost all social issues, from the national economy to an individual's morality. The "appropriate use of technology" is a consistent technological solution to this problem. In fact, it means the need to produce some kind of a "user's manual" for controlling and manipulating the problems that are likely to occur when information technology is implemented.

The "appropriate use of technology" seems to mean two things in general. First of all, it usually indicates a vision of technology as a means of increasing economic growth. But it also indicates the values of humanism, equality and justice. Thus the various official strategies on the information society in Finland are a curious combination of economic opportunism and moralising speech that say that technology must not become a thing that increases the inequality between citizens.

OFFICIAL RHETORIC ON THE INFORMATION SOCIETY

My first example of the structure of the official rhetoric on the information society is a short description of a governmental document. In the spring of 1997, the government of Finland (Council of State) presented its report to the Parliament on the future prospects of the Finnish nation (in Finnish: *valtioneuvoston tulevaisuusselonteko eduskunnalle*): "Reilu ja rohkea - vastuun ja osaamisen Suomi" (literal translation: "Fair and brave - A Finland of responsibility and know-how"). In this rather lengthy document, the government describes its policy on a whole range of issues, beginning from the position of Finland in Europe and ending with the affairs of domestic politics, such as education and social well-being. In its latter part, there is a chapter on the development of the information society in Finland, entitled "We are the Finnish information society" (in Finnish: "Suomalainen tietoyhteiskunta olemme me"). (This document has been published in Finnish in WWW: <http://www.vn.fi/vn/suomi/selont/tulevaisuus/>)

This report is the government's address to the Parliament and, at the same time, to the Finnish nation. This has some important implications for the viewpoint presented in this document. Because it is a government address, it is written from the government's point of

view. It is a rhetorical document in a classical deliberative sense, where someone argues before us, what should be done. And it is clearly a political document. In fact, it belongs to the character of the debate on information society that it is thoroughly political by its nature. This is also a strategy document and this means that its main function is to create harmony of values and purposes among its readers. The idea of a strategy document is to create a common vision and a common understanding of the most important tasks for some organisation or community. So it would be a bit off the mark to read this document as a serious scientific estimation about the future of the Finnish nation.

The tenor of this document is a bit authoritarian. Here the Council of State tells the nation, what can be expected for the future. The government does not ask the nation what it might want. Instead, it tells in a quite direct way that the future is more like a destiny and that the things ahead are inevitable. This is one way of arguing about a need for action. When there are no alternatives to choose from and when the things ahead are inevitable, the government's politics can't ever be wrong.

This feature is not at all surprising, because in all official rhetoric on the information society, there are rarely any clarifications of the reasons why societies are at this historical moment changing into information societies. Usually, social change and the need for some political and social action are explained by referring to global changes in the economy and to rapid technological progress. In the official rhetoric on the information society, changes in the economy and technology are generally the basis or a starting point for argument, not a conclusion or an issue to be argued about. This is a curious fact, because the discourse on the information society emphasises that all things around us are changing and nothing will stay the same. However, this fundamental change does not seem to concern the matter that economy and technology still are the fundamental forces behind social change. So, official rhetoric on the information society has the strong character of technological and economical determinism.

The government begins its report by making some definitions about the information society. Contradictory interpretations and conceptions of the subject are presented. Next, the report mentions some paradoxes and risks that may appear in the process of informatisation. There is no effort whatsoever made to resolve the contradictions that are brought up in different definitions. Obviously, the

purpose is to show that informationalisation itself is a contradictory process. Even though the topic is somewhat problematical, everything is presented as true and reliable knowledge. The text does not include any doubts or hesitations about the subject, instead it turns out to be a discourse on truth.

After making these definitions and showing various paradoxes, the text continues as a catalogue of various topics that have something to do with the current social change. Yet, there is no clear hint of what the underlying agenda of the text might be. It probably is a mixture of the agendas of different ministries, since the topics belong to such categories as the economy, changes in business and industry, and education. This is one aspect of the official rhetoric on the information society, namely that it is inherently diffuse, and that there are no efforts made to organise the various topics in some reasonable way. The topics are merely labelled and then just left there without any further commentary. This feature can also be a result from the SWOT principle. The idea in SWOT is just to make an inventory of resources and costs, and then on the basis of this knowledge, to set forth a plan for action. This makes sense in cases, where the actor is a single organisation, a person or a community. But the picture gets quite obscure, when one tries to construct a strategy for a whole nation. There are so many different interests involved, that the community and togetherness of all actors can be constructed only on very general level, which it in the end signifies very little.

Beginning from its title, this report uses a strong rhetoric of identification in Kenneth Burke's sense. By addressing its public as "we", it tries to demonstrate that the government's purposes are also the purposes of the Finnish nation. By saying that "we are the Finnish information society", it dissolves the difference between political elite and people and thus builds solidarity between the two. It tries to persuade people to see that the government's interests are everyone's cause. Moreover, the cryptic title "Fair and brave – Finland of responsibility and know-how" (in Finnish: "Reilu ja rohkea – vastuun ja osaamisen Suomi") is persuasive in the same way, since who would not like to live in a society that is fair, brave, responsible and has a high standard of know-how. In the text, there is also the subtitle "What do we get more of when we get the information society?" which functions in the same identifying way. Using this identifying rhetoric, the text constructs a collective actor, Finland. The message is clear: This is our collective enterprise.

In order to see how this official document constructs a narrative on its discursive level, I made a short Greimasian actantial analysis of it. The idea of the actantial model is to describe the fundamental relations in a narrative. Actans are general relation categories that exist in all imaginable stories, in different stories different actors occupy actant positions. The same story can be told from a different actant perspective, a story of a subject's victory is at the same time a story of the anti-subject's loss. The kernel in the actantial model is the relationship between subject and object. Other actants are organised around this relation. The sender gives the subject a motive for wanting the object. At the same time the sender also determines the values in this narrative. Helper-actant of course helps the subject and the opponent actant tries to prevent the subject reaching the object. In the end of the story a receiver actant evaluates the actions in the story by gratifying and punishing the actors. In a way, an actantial model is too trivial a tool for analysing texts, since it always produces the same kind of description of the events.

Here I name the different actors and functions. In the text, the receiver actant is the nation. The value object is the well-being and prosperity of the Finnish nation. In the body of the text, there are several actors that function as part of the actant subject. Various business corporations, public and private organisations, educational institutions, and the public administration are mentioned as social actors. Most of these actant subjects are also in the function of helpers, depending on the topic in the text. So, the public sector can be a helper for a private enterprise and vice versa. One definite helper in the text is the "ability to have know-how" (in Finnish: "osaaminen"). The changes in the economy and technology are sender actants. Finally, the "wrong choices" (which are not explicitly defined), bad politics (most likely practised by former governments) and unfortunate economic conditions form opponent actants.

These actants construct a narrative about the future of Finland. Changes in economy and technology require some actions that will assure the future well-being and prosperity of the Finnish nation. There are some difficulties in reaching this goal, former governments have made the wrong decisions, technological progress contains severe risks, and economic conditions are not always or entirely on the nation's side. This is the reason why we all, business corporations, public and private organisations, institutions and competent citizens as well, must join together in the effort to build "not only the informa-

tion super highway but also the highway of creativity”, as it is declared in one slogan of the paper.

Because this is a narrative about the future of Finland, it cannot describe the events to the end. It obviously must stop the story without putting it to its evaluative end. In the study of the rhetorics of science this figure has been noted as well. This figure has been called the terminated or halted narrative. The theory behind this phenomenon is Greimas’s idea of a canonical narrative schema. A well closed narrative is formed of three parts or tests as Greimas calls them: qualifying, decisive and glorifying tests. The first part, qualifying test, defines the situation and builds motives for the actors in the current story. The second part, the decisive test, describes the events where the actant subject advances toward the object. The last part, the glorifying test, consists of the evaluative acts, where the whole meaning and value of the story and its events are weighed and considered. In terminated or halted narrative the situation and its actors are defined, but then the narration is stopped. The persuasive function in this figure is to build motivation for the reader of such texts to join the common effort that has been put forward in the text. There are usually some projections between the actors in the text and its readers. The idea in this Finnish document is to describe to the Finnish audience the most important assignments for the future and then also move the responsibility of reaching the goals to that audience.

The whole chapter on the information society points in this document to its last section entitled “The new role of the public sector” (in Finnish: “Julkisen sektorin uusi tehtävä”). The argument creates a certain lack or need. “Knowledge and know-how do not easily change into economic growth, new jobs and well-being. Communication between primary actors does not happen effectively enough yet. The lack of a collective vision and strategy makes involvement difficult. The risks and opportunities of the information society are not observed rapidly enough, because the magnitude, complexity and nature of the change is not understood extensively enough.” Here is the chance for the public sector to achieve a new role. Only the public sector can satisfy this need, namely the need for public support and co-ordination between different social actors. “The goal of the public sector is to activate and harmonise the interests of those who are willing to create new services, and this is how the public sector can assist in the birth of the future knowledge markets.”

SOME COMPARISONS BETWEEN THE FINNISH STRATEGY DOCUMENT AND THE EUROPEAN COMMISSION REPORT

My second example is made of a small analysis of two documents. The first one is a Finnish strategy document: "Quality of life, know-how and competitiveness. The starting points and ends of strategic development of the information society" (In Finnish: "Elämänlaatu, osaaminen ja kilpailukyky. Tietoyhteiskunnan strategisen kehittämisen lähtökohdat ja päämäärät". Sitra 206, Helsinki 1998. It has been published in Finnish in WWW: <http://www.sitra.fi/tietoyhteiskunta/suomi/st21/sitra206b.htm>) This document is made by SITRA, which is an independent Finnish research and funding organisation, but in the process of making this document there has been a great number of specialists from different areas of society. In a way, this paper has a semi-official nature. It is not an official report, since the government has not in any way adopted it for its own political decision making. This document is addressed to the wide popular audience and the explicit wish is that it will promote public discussion and debate on the development of the information society.

The other document is "Building the European information society for us all. Final policy report of the high-level expert group". This report is made by an independent expert group. The group itself was established by the European Commission and its mission was to take part in the European Commission's Action Plan on the Information Society by studying the social and societal issues of information society.

Both documents are constructed on the principles of the SWOT analysis. So it is no wonder that they both share the vocabulary of challenges vs. threats or opportunities vs. risks.

The first interesting common feature between these documents is that in both of them there is an emphasis on the concept of knowledge society instead of information society. In the Finnish language we use the term "knowledge society" instead of "information society" and this terminology has led to a number of misunderstandings both accidental and deliberate. By the concept of knowledge society one tries to make a distinction between concepts of data, information and knowledge. This is one way to offer a perspective on the human and social aspect in the development of the information society. According to

this approach, data and information are something that machines and computers process and knowledge is something that is relevant to human beings.

In addition, it is also interesting to find out that in both the European Commission's expert group paper and in the Finnish popular debate a vision is put forward of a "society of wisdom".

One would hope, of course, that society would be shifting more and more towards a 'wise society', where scientifically supported data, information and knowledge would increasingly be used to make informed decisions to improve the quality of all aspects of life. Such wisdom would help to form a society that is environmentally sustainable, that takes the well-being of all its members into consideration and that values the social and cultural aspects of life as much as the material and economic. Our hope is that the emerging information society will develop in such a way to advance this vision of wisdom. (p. 16).

As one can see, this is a utopian vision. The debate on information society has this kind of utopian and also dystopian quality beside its more practical dimensions.

In the Finnish paper it is essential to state that Finland is a society at the leading edge of information society development. This can be interpreted as a national exaggeration and also as a way to construct a positive self-image for the Finnish nation. It gives a rather comical impression that the development of the information society is some kind of a competition, perhaps some sport event like cross-country skiing. It is also stated that just because Finland has this path finding position it is also a very demanding role, because Finland will be the first to face the problems in this development. So, this is one rhetorical way to emphasise the difficulty of the task and to glorify its meaning, since we have a tendency to value highly difficult assignments. Furthermore it is also stated, that the role as a path finder is in the interest of the Finnish nation, because "Finland can most effectively have an impact on the international development by and with its example and experiences of the building of the information society, when there also will be opened markets for the Finnish know-how and products". As you can see in this argument moral and economic aspects are neatly put together. The effect is that it is not only morally acceptable but also economically reasonable to try to keep this position at

the leading edge. Competitiveness is indeed one central theme in the Finnish document beginning from its title. This is closely connected to the actantial structure of the Finnish document. Namely the opponent actants in the Finnish case are other competing nations. Finland's situation is presented in such terms that we are always in a threatened position, where someone else can take our place in the international competition.

This aspect of competitiveness is missing from the European Commission paper. This is understandable since the expert group tries to see the situation from whole Europe's perspective. There is - of course - not a single actor from a national level whose prosperity and well-being is the evaluative yardstick in this document. But this does not mean that there are not contradictions and tensions in their narrative. One can say that the European Commission's paper is written in a less dramatic way than the Finnish paper. It does not construct such sharp bipolar settings as the Finnish paper does and it does not emphasise in such a great degree the difficulties in the way of the information society.

In both papers' narrative there is however at least one common opponent actant. This is the uncontrolled and unorganised development of the information society. In the Finnish paper there is a lot of concern about the uncontrolled development of economy and technology. If these forces are left alone and if they are given the chance to develop as they want the results could be very devastating to the Finnish society at large. One result could be the growing division between the rich and the poor. And this division does not only affect material goods, but also the division and distribution of knowledge and information in society. Another concern in the Finnish paper is that if technological and economic development is not controlled and regulated somehow, it will not automatically bring to the fore products and services that are relevant to the needs of citizens in the information society. In the European Commission's paper the same kind of concern is expressed by using the natural metaphor of "harmonization by erosion". By this it is meant the uncontrolled development of social policy systems in European societies. There is the possibility, that societies try to gain marginal advantage by downgrading welfare provisions. In this question, the European Commission is seen as an institution above different national agencies. Once again, the perspective is different in national strategies and in the Commission's

document. Still, in both of them the question of social integration is raised.

One interesting perspective to texts of the information society is to look at what social actors are mentioned in them and what are the roles they are addressed to. In the Finnish paper the case is clear. Following actors are mentioned in this order: individuals, business organisations, public administration. Individuals are described as beings who want to develop and express themselves both in work life and in their free time. What this actually means in the paper is that individuals should communicate and consume ever more. Individuals are also given the duty to make their own decisions on what they want to consume, the document is clearly against public regulation in this respect. Business organisations are given a strange position in this paper. The purpose of their action is "to give work and income and develop the quality of working life". Nowhere it is mentioned that the purpose of business is to make profit. Business organisations are reacting and adjusting their functions to increasing competition and internationalisation. The job of the public sector is to advance the development of the information society by means of legislation, research and education.

These actors are the named positions which are used when evaluating the consequences of the process of building the information society. In the European Commission document the public sector is the main actor. Different phenomena and processes in the information society are observed from its point of view. One can say that the development is focalised into the perspective of the public sector.

PUBLIC DISCOURSE ON THE INFORMATION SOCIETY

The public debate on the information society in Finland has touched many topics. Kari A. Hintikka (1998) has divided it into four larger fields or clusters. First, there are problems concerning the basis of the information society (including, for instance, conceptions of information and knowledge, interaction in the information society, the usefulness of information networks, etc.); second, issues on network economy and change in working life; third, democracy, everyday life and learning; and fourth, markets of knowledge and communication.

What I would like to comment on here is the value aspect or the moral aspect of this debate. Democracy and equality are fundamental values that almost everybody shares. Because they are exceptionally well accepted, they are used as points of departure in argument. Basically, as we all know, there are two opposite lines of argument concerning the nature of the information society in general. The first line tries to show that societies are always unequal and that the current social change into the information society only increases this unjust condition. The second line of argument tries to assure that the information society can and will increase democracy. These two values are so central that they are frequently referred to in official reports on the information society.

Beyond this “either/or” discussion, the values of equality and democracy are also used to demonstrate that the speaker is in need of more resources. For example, the public libraries are given a special role in the Finnish strategy towards the information society. Their assignment is to give all citizens free access to the Internet. Almost everybody agrees on this and this is justified by using the values of equality and democracy.

It also appears that most representatives of the libraries are willing to take part in this new task. They argue, however, that they cannot accomplish this obligation because libraries do not have sufficient resources. The same structure of argument is also common among teachers and other people working in educational institutions. When defending citizens’ relationship to the information society as a right, the values of equality and democracy are commonly invoked. It is argued that everyone’s civic right is to have access to the information society, whatever it may mean.

The concept of the information society is also used as a topic in cultural criticism. I would like to define this criticism as an extensive and diffuse critique of alienation. Its main target is not only technology or information technology as such, but behind them, there is a larger concern about the nature of modern society and modern culture. So, in this respect the information society and information technology are used as a scapegoat to illuminate different unpleasant phenomena in our society.

The typical model of cultural criticism in this debate is constructed by usage of conceptual dualities. The duality between reality and virtuality is quite commonly used. Usually, the speaker worries that the difference between the real and virtual becomes obscure. The

real can indicate many things, such as concrete reality, the nature and experience of it, face-to-face social communication, competence to do something with one's own hands, awareness of sound social values, etc. Speakers commonly declare that by creating virtual reality information technology distorts our conception and experience of reality in one way or another. In their argument, information technology is the ultimate technological instrument that marks the final phase of estrangement. Another frequently used conceptual duality is the polarity between active doing and passive being. This is expressed, for example, by saying that information technology prevents children from actively learning things, instead, they just passively adopt knowledge.

This is a nostalgic critique of culture. It is constructed by evaluating positively some undefined past, where values had a constant and certain nature. This construed past is then used as a normative criteria by which the present circumstances are judged. In this perspective, the present and future seem to be nothing but deviations from that normative standard. That is why there is also a strong feeling or sense of loss and confusion in this criticism. It is usually expressed in phrases like "nothing is real and solid anymore". This model of criticism is problematic in so far as it claims that it could be possible to define some accurate criteria in judging what is an unalienated and concrete relation to reality. It is also difficult to define at what historical moment that relation existed.

It is quite clear, that the information society and information technology are moral issues. It has been claimed (e.g. Hintikka 1998, 30), that whenever a new technology is introduced to the wider public, it always causes some kind of a moral debate. A recent example of this is the urban legend telling how mobile telephones can be harmful by heating their user's brains. Another example is the debate on whether it is acceptable to use mobile telephones in public places or not. This moral aspect can be understood as a normal phase in a general model or curve of adopting technological innovations (on the diffusion of innovations see Rogers 1983). This model describes the innovation process as a pattern, where people begin to use a new device more and more. Depending on how many people already have become accustomed to it, the debate on that device also changes. So it is typical, that in the early phases both uncritical hype and overstatements about its pernicious effects are normal. Later on, when the innovation has been more extensively adopted, the discussion also becomes

more diverse, until it loses its charm altogether. Kari A Hintikka has analysed the Finnish debate on the information society from this perspective, and it seems that at least parts of it follow exactly this curve of social diffusion of technological innovations. (see Hintikka 1998 and 1999)

However, I would like to point out that most technological innovations do not lose their moral aspect even when they are well adopted into culture. For example, we still speak and argue about cars and television in moral terms, even though they have been a part of our everyday life, at least since the beginning of the 1960s. We have the tendency to stress how cars are for us merely useful transport devices rather than a remarkable source of feelings and experiences. In the same way, most people say that they prefer watching news and documentaries rather than soap operas on TV. The explanation for this behaviour is, of course, that it reflects some crucial values in our culture. It is respectful to show interest in such values as utility (in the case of automobiles) or reality (in the case of television), and conversely, it is an indication of bad or inferior taste to say that cars or soap operas can be a source of enjoyment. Because we regularly do speak about technological objects in this way by using different value patterns, I do not believe that the information society or information technology could somehow stop being a moral issue in our culture. It is more likely that their moral aspect will only be articulated in some new way.

REFERENCES

- Greimas, A.J. & Courtés, J. (1982): *Semiotics and Language*. Analytical Dictionary. Bloomington: Indiana University Press,
- Hintikka, Kari A. (1998): *Puheenvuorojen kirjasto*. Keskustelua suomalaisesta tietoyhteiskunnasta. Helsinki: Sitra 163.
- Hintikka, Kari A. (1999): *Puheenvuorojen kirjasto 2*. Keskustelua tietoyhteiskuntastrategiasta. Helsinki: Sitra 219.
- Latour, Bruno (1996): *On Actor-Network Theory*. A Few Clarifications. *Soziale Welt* 47(1996), p. 369-381.
- Propp, Vladimir (1984): *Morphology of the folktale*. 2. ed. Austin: University of Texas Press.
- Rogers, Everett M. (1983): *Diffusion of Innovations*. 3. Ed. New York: Free Press.

part two

structural changes

From Technological Control of
Production Towards a Meaning-Based
Co-Ordination of Action
*New ICT Applications and an Alternative
Organisation Logic*

GERD SCHIENSTOCK

There is widespread agreement that, at the end of twentieth century, we were confronted with one of the rare intervals in history where major events occur with great rapidity, causing dramatic economic and social changes (Gould 1980, 226). Sometimes it is argued that the changes occurring together with the disappearance of the industrial society will be even more dramatic than those caused by the replacement of the agrarian by the industrial society, as the change process will take place in a much shorter period of time. In the current public and political debate on industrial transformation, the notion of Information Society or information economy has taken centre stage together with the publication of the very influential *Bangemann Report* (High Level Group on the Information Society 1994) and following political initiatives in various countries, although it is not undisputed (Lyon 1988, 17).

THE TECHNOLOGY-PUSH APPROACH

The analysis of the emerging information society is dominated by a technology push approach. The discussion on a new technological revolution clearly indicates this. As the *Bangemann Report* states: "Throughout the world information and communication technologies (ICTs) are generating a new industrial revolution already as significant and far-reaching as those of the past" (1994, 4).

The dynamics of the current transformation process, however, cannot be revealed from the quantitative increase in the applications of modern ICT. What really characterises the current transformation process is the fact that all sectors and industries are increasingly interpenetrated by information work and that human work will occur more and more through ICTs as the intermediary. Instead of arguing that the information society will replace the industrial society due to technological changes, as was done in the earlier debate (Bell 1973), we can conclude that the existing socio-economic structure will be transformed by processes of informatisation.

In the last few years, according to Robins and Webster, there has been a decided step away from prioritising technology as the centre-piece of change and therefore also from technological determinism. "... nowadays the focus is on information – rather than information and communication technologies – as the key source of change" (1997, 3). The role that modern ICTs play in the transformation of society is regarded as a minor one when compared to the major part played by information. Information and knowledge are an important asset now that the economy is becoming more uncertain, which is mainly caused by the increasing global competition.

One can of course argue that in many ways all human societies have been information economies in that all economic activities depend upon human beings and their ability to bring information to bear on their tasks. "In fact, all tasks to which human labour is applied, inherently involve some measures of information processing. This might be in terms of receiving instructions (communication), checking to see in what state the materials are (perception), performing calculations or other mental acts (transformation of information or whatever" (Miles and Robins 1994, 9). This means that the appropriate distinction is not between an industrial and post-industrial economy but between two forms of information-based industrial, agrarian and service production.

However, when we use the term "information society", we are not talking about a historical universe. The term "information society" is used to characterise a new and unprecedented kind of social and economic formation. The development of a technology-based information space, in which phenomena of the real world are represented in symbolic artefacts, can be seen as the key aspect that distinguishes the emerging modern information society from the traditional one. This information space can be characterised by the following aspects:

- transformation of all information created in the production process into a common digital form
- integration of different information systems into one technical system
- world-wide extension of information networks (Boes 1996).

In the following, we will discuss the two key developments which both contribute to the increasing interpenetration of work by information activities: the growing need for knowledge-intensive business services and the introduction of a new organisation logic.

GLOBALISATION AND KNOWLEDGE-INTENSIVE BUSINESS SERVICES

It is often argued that globalisation is the most important factor behind the current socio-economic transformation. Globalisation means more than just an increase in transborder trade and direct investment: it signifies an increasing interdependence and interpenetration of economic processes on a world-wide scale. Castells defines the global economy as "an economy with the capacity to work as a unit in real time on a planetary scale". (1997, 92).

Globalisation has contributed a lot to the stiffening of competition as national monopolies or oligopolies have collapsed. However, regarding the emerging information society, the fact that globalisation at the same time results in the establishment of new competition criteria is even more important. Price, quality and time can be seen as entrance barriers to the global market; economic success, however, depends upon the capability of companies to be first at the market with new products which meet the taste of their customers. Under the conditions of global competition, innovativeness and customisation are becoming the key criteria of economic success, particularly as the dynamics of technological progress accelerates and the life cycles of many products are shrinking across a broad spectrum of industries.

"Quicker innovation", as Lash argues, "... entails that a far greater proportion of the production process than heretofore must be accounted for by a knowledge-intensive 'design process' and a smaller proportion by the 'material process'" (Lash 1994, 119). But innovation also depends upon the research potential of the company.

Although the result of basic research conducted in universities and state research institutes are publicly available, it takes constant investment effort in theoretical research for companies to be able to interpret and use abstract knowledge. Companies can hardly make use of the public good “new theoretical knowledge” if they do not conduct research themselves.

In some way, we can see similar trends in the service sector. Services are often characterised as activities in which output is essentially consumed when produced. However, due to modern ICTs, many service activities can nowadays be embodied in artefacts, which means that the direct relationship between production and consumption can be broken up (Soete 1996, 48). This also implies the increased tradeability of these services. In this case, their attraction for customers depends very much on the contents. Therefore, the design of the contents will become the main value of service activities. But still, when services are no longer immediately consumed, to do research to improve existing or developing new services becomes worthwhile. This means that not only in manufacturing but also in service processes knowledge-intensive research and design processes are becoming more important.

The fact that more work is going into design and research processes is only one aspect of the changes in the structure of work caused by the globalisation process. As customisation becomes increasingly important, more work will also go into marketing. Furthermore, the globalisation process makes high demands on the management function. Planning becomes more difficult under the conditions of increasing uncertainty. The same holds true for the function of organisation, as the restructuring of manufacturing and services is becoming a process of learning and continuous improvement. We also have to mention the increasing demand for further training. Continuous incremental improvement as well as permanent organisational adaptation and renewal can only be realised if workers get the chance to improve their knowledge through lifelong learning. There is, we can conclude, an increasing demand for knowledge-intensive business services, including both indirect work and management work, whereas direct production or service work may decrease.

Besides these changes in the structure of work, the nature of the production process is also changing. Customers no longer accept highly standardised mass products, instead they ask for more indi-

vidual solutions. This process has been commonly understood in terms of “diversified quality production” (Streeck 1989) and “flexible specialisation” (Piore and Sabel 1984), in which increasingly specialised consumption entails more flexible ways of production. According to Kern and Schumann, the system regulator is becoming the key figure in manufacturing, who - instead of performing standardised tasks - is more engaged in problem solving processes (1984). A similar trend has been identified in the service sector, where the concept of ‘a service out of one hand’ also transforms work into some kind of a problem-solving process. It is not only that the production of things and services has become infused with symbols insofar as knowledge-intensive services have become central to many production processes but, at the same time, the core production processes themselves have become more information-intensive.

It is important to mention that there are also opposite trends. We should definitely not conflate the processing of data and their exchange between people and the acquisition of knowledge. When we differentiate between the notion of information and the need for knowledge, it becomes quite obvious that the concept of information society and that of knowledge society can have very different meanings. Processes such as processing and transmitting data are less demanding and less knowledge-based. We also have to look at the concept of innovation more closely. Very often diversification and innovation are based on the standardisation of the parts of the whole product. It is obvious that there is no general trend towards knowledge-based information work. Instead, we can expect some kind of polarisation with increasingly knowledge-based jobs, on the one hand, and more repetitive information work on the other

THE NEW ORGANISATION LOGIC

Globalisation also causes the developing of a new organisation logic. Here we will first describe the logic of the traditional Taylorist/Fordist organisation model. This model is based on the assumption that a more or less unlimited demand for highly standardised consumer goods exists. At the same time, due to national monopolies or oligopolies, companies do not have to worry about foreign competition. We can characterise the environmental situation as placid, secure and simple. As it is possible to anticipate the market trends for a longer period of time, the production process can be organised in a

highly standardised, fragmented and formalised way. In order to secure the adherence to the formal rules and detailed regulations, bureaucratic control structures are established.

The traditional production model is linked with a specific form of information flow; it contains channels in which only a vertical flow of information is possible and through which the acting of hierarchically arranged units is controlled. Actually, this model has some kind of built-in mechanisms to block information flows; due to its bureaucratic structure and the far-reaching division of labour, the model both hierarchically and vertically produces too many interfaces which become a hindrance to communication and information exchange. There is a risk that within the traditional production model too much information gets lost, particularly as in the bureaucratic control system the broad middle management is mainly dealing with the routine filtering of information.

In a globalising economy, where innovation competition is dominating and customers no longer accept standardised mass products or services but ask for individual solutions to problems which they themselves cannot always define exactly, markets become unstable, insecure and complex. Companies have to abandon the traditional Fordist production model and apply new organisational structures and channels of information flow that can cope with uncertainty. The following elements can be seen as important for a new organisation logic: systemic globalisation, vertical de-integration, functional or process integration, which can also overstep the borderlines of companies, discursive co-ordination as well as the freeing of agencies from bureaucratic rules to allow for self-organisation and self-control (Schienstock 1997).

We have argued earlier that as one of the consequences of a globalising economy we can observe the breakdown of national monopolies and oligopolies. Firms are increasingly confronted with foreign competitors on their "home market" while they themselves start to globalise their production. On a borderless market, companies can no longer rely on expending their exports only; they have to increase their direct foreign investment and to produce internationally. Nowadays, even medium-sized companies organise their production on a global scale. Ernst and Lundvall stress the importance of systematic globalisation. For them globalisation not only has a quantitative but also a qualitative aspect: this means "a shift from partial to systemic forms of globalisation. In order to cope with the increasingly demand-

ing requirements of global competition, companies are forced to integrate their erstwhile stand-alone operations in individual host countries into increasingly complex international production networks" (Ernst and Lundvall 1997, 11f).

The strategy of vertical de-integration is mainly associated with downsizing and outsourcing. Big companies reduce size and become leaner to get the same entrepreneurial dynamism, innovativeness and informalism as small companies have, and to be able to react as quickly and flexibly as small companies can. Downsizing often takes place together with outsourcing. In companies nowadays more and more functions are becoming the subject of 'make or buy' decisions. If units cannot compete with offers from outside suppliers, they are at risk of becoming outsourced. Not only peripheral but even functions that can be considered as core businesses, as, for example, design, become legally independent through outsourcing. However, former organisational relationships do not automatically turn into market relationships. Instead, outsourced parts are still often linked very closely with and economically controlled by the core company, based on long-term exchange agreements.

The establishment of cost and profit centres is another strategy to reduce vertical integration. More autonomy is given to the firm's divisions, while, at the same time, they become fully responsible for costs and profits. Agreements are signed between headquarters and costs centres in which output, the quality of the product, the time of delivery and costs or profits are fixed. The tasks and responsibilities of the headquarters, on the other hand, are reduced quite significantly. According to Hedlund and Rolander, in so-called 'heterarchically' organised companies responsibility for product groups, functions and specific territories can be decentralised in such a way that many units have a say in the company's decision-making process (1990). Loose coupling and direct negotiation among sub-units particularly concerning transfer prices is typical for a profit centre organisation.

A consequence of the introduction of costs and profit centres is the flattening of hierarchy, as organisation levels between headquarters and the centres become obsolete. The reduction of the organisational levels of bureaucracy, however, continues further down the hierarchical ladder as companies become more aware of the disadvantages of such a large bureaucracy: slow information exchange and even loss of information, lengthy decision-making processes and a non-innovative business culture in particular. All these conse-

quences of large bureaucracies will become serious problems in an economy where success in business depends very much on the innovativeness of the companies.

The most important aspect of an organisational strategy of functional integration is the introduction of group work. Work groups often become responsible for self-contained production processes without a fixed division of labour among the members of the group. Work groups have to organise themselves; they are expected to continuously optimise the way in which they organise their work. At the same time, by monitoring each other, work groups should also continuously improve their co-operation and information exchange. Learning by doing and learning by interacting are important aspects in group work.

Group work necessarily involves reflexivity. As Lash puts it: "It entails self-reflexivity in that heteronomous monitoring of workers by rules is displaced by self-monitoring. It involves (and entails) 'structural reflexivity' in that the rules and resources (the latter including the means of production) of the shop floor no longer controlling workers, become the object of reflection of agency. That is, agents can reformulate and use such rules and resources in a variety of combinations in order chronically to innovate" (1994, 119). There is a tendency to construct rather than simply adopt roles prescribed by management.

The group or team approach is also often applied to organise development and design processes. A new style of innovation management reintegrates research and development with engineering, design, procurement, production and even marketing. The development of new products, quality control, market assessment and price calculation – all these activities are performed within a cross-functional team consisting of members from various departments. The idea behind such teams is that all products are designed with manufacturing in mind but also to speed up marketing.

Furthermore, large companies completely restructure their supplier chain by reducing the number of suppliers drastically. At the same time, a new division of tasks takes place; suppliers have to produce complete systems which can be assembled directly without any contribution of the core company and they have to take over additional tasks, particularly in research and development. This means that the innovation process will become more like a joint undertaking of networked firms. Besides this, customer firms as well can take part

in the co-construction of new products in order to avoid marketing problems.

Decentralisation and responsible autonomy, of course, always carry the risk of co-operation turning into competition. Although top management and other superiors can no longer rely on the traditional command and control mechanisms, they still have to co-ordinate business processes. But they have to turn to more 'soft' measures, such as creating a company vision and developing an organisation culture, organising platforms to exchange information and to develop long-term strategic plans as well as to strengthen co-operation between autonomous parts. Here we can speak of discursive co-ordination as a new way of governing business processes. This new way of governing can also be applied in the relationships between core companies and their suppliers or customers.

Based on what has been said so far, we can characterise the new organisation logic as mainly relying on the governance mechanism of networking, which integrates both the flexibility advantage of the market and the stability advantage of bureaucracy. The network approach is actually extended to the relationships between companies and so-called supporting organisations. To survive in innovation competition, companies can hardly rely only on themselves; they do not innovate in isolation. Instead, they look for co-operation with organisations that can support them in their innovation activities. Universities as well as private and public research institutes, technology transfer institutes and state agents in research and technology policy are seen as the most important knowledge-providing organisations that companies co-operate with to increase and accelerate their innovation activities. Also, investment banks, education and training institutes and business associations can directly or indirectly influence companies in their innovation activities.

The new organisation logic, we can conclude, manifests itself in the following three network structures:

- an intra-organisational network structure which develops between sub-units replacing the bureaucratic governance regime; this increasingly includes global production networks as companies break down their value chains and locate discrete functions in different regions all over the world

- an inter-organisational network structure which develops between companies replacing the market as the traditional mode of co-ordinating exchange
- a network between companies and support organisations to increase and speed up innovation activities within companies.

TECHNOLOGY PERSPECTIVES

Although modern ICTs cannot be seen as the driving force behind the unfolding of the new organisation logic, one cannot argue that modern ICTs do not matter at all. Our hypothesis here is that the new organisation logic develops together with the changing forms of applying modern ICTs. Here we will distinguish between the following perspectives: ICTs as a tool, as a control device and automation technology, as an organisation technology, as a feedback device, and as a network technology.

As all other technologies, ICTs can firstly be characterised as tools to work with (Eason 1988). The introduction of modern ICTs then refers to single sub-processes or tasks only. Technology from this perspective is visible and tangible; technology is a machine, a piece of apparatus, or a device. The tool approach is based on a materialistic concept of technology. As tools, modern ICTs are intended to support people in their work, the aim is to give the person some advantage in pursuing the task – to enhance the task performance, for example, or to work more rapidly and more exactly.

Eason speaks of modern ICTs as hand tools. However, the computer or the microprocessor is not meant to manipulate the material conditions of the product but syntactically manipulate its internal state. Therefore, the computer is characterised as 'brain technology' (Krämer 1989). Because of the fact that it can duplicate and process all symbolic artefacts and that it can easily be reprogrammed, which makes it a very flexible tool, the computer is in some way a unique tool.

In the beginning, computers were introduced to facilitate routine tasks, such as administrative data processing, accounting and statistical analysis. Later on, computers could also be used to assist in design and planning and to support managers in their decision-making, as it became easier to quickly rehearse various alternative op-

tions. Eason gives some examples of modern ICTs as a tool: "Word processing enables the unskilled typist to produce good quality outputs because there are no messy errors corrected on the paper. An integrated work station gives the full power of a publishing house to a single operator; to present type in many fonts, integrate it with tables and diagrams, vary the size of the characters, etc. Planning with network control software means it is possible to vary an element in the plan and examine its impact on the whole plan. Similarly, a spreadsheet enables the financial planner to change a single estimate and quickly see its implication for overall costs. Not only does computer-aided design enable designers to build a three-dimensional model that can be examined from any angle but it makes it possible to test the effect of changing an element of the structure." (Eason 1988, 19).

Modern ICTs are very powerful tools since they can store huge amounts of information and process them within a very short time. They increase an organisation memory dramatically, which can be defined as stored information from an organisation's history that can be brought to bear on present decisions. (Wash and Ungson 1991, 61). Sometimes it would not even be possible to conduct specific tasks without ICTs as powerful tools. This is particularly true for information-intensive services in the banking business. From what has been said so far we can draw the conclusion that modern ICTs as a tool can make companies more competitive not only regarding costs and prices but also time and quality.

It is important to mention that, due to technological innovations, a platform for using modern ICTs as a collective tool is developing (Baukrowitz et al. 1994). In the case of a decentralised work group computing model working jointly on a complex task and co-ordinating directly reciprocal sub-processes will be possible. For example, workers, even if they are spatially separated, can jointly develop a new product or a new market strategy. ICTs are also used as a collective tool when a maintenance problem cannot be solved on the spot by the service technician responsible and he has to ask specialists working in the company for support. In this case, the aim of the system development is not to replicate whole work processes technically but to support collective work behaviour through a collective tool and joint access to information.

While, on the one hand, ICTs can become powerful tools in the hands of the workers to support them in their work, they can also be used by the management as control devices. Due to modern ICTs, it becomes possible to directly monitor the work process and individual work behaviour as well as to control work progress. Therefore, when needed, the management can intervene in the work process and demand a change in work behaviour.

ICTs also make it possible to transfer the knowledge of skilled workers into machinery and thereby to eliminate human labour. "The most important impact of new ICTs", according to Soete, "is that they move the border between tacit and codified knowledge. They make it technically possible and economically attractive to codify kinds of knowledge which so far have remained in tacit forms" (1996, 49). The codification of knowledge leads to the automation of production processes. To codify tacit knowledge, however, is often not easy, because it is complex, and it is especially difficult and costly to codify knowledge when the reality it refers to or is operated upon is changing rapidly (Ernst and Lundvall 1997, 8). So far, automating human skills has proved to be economically viable only in relation to relatively simple tasks, but nowadays attempts are increasingly made also to transfer expert knowledge into data and expert systems.

Ernst and Lundvall, however, also argue that the elimination of human labour is only one aspect of the automation process, the codification of tacit knowledge and its transfer into modern ICTs also creates a demand for new activities and skills. "The very growth in the amount of information which is made accessible to economic agents increases the demand for skills in selecting and using information intelligently (1997, 28). Modern ICTs, although they depend on codified knowledge, simultaneously create new demands for tacit knowledge.

Furthermore, ICTs are conceived of as organisation technologies. Thus, they integrate work processes conducted by human beings and machines into one total process (Brandt et al. 1978). Here, however, we will use a more dynamic concept interpreting technology as a strategy to design production processes aiming at controlling whole production systems. We can use the term "technisation" (Barley 1994) to stress the strategic aspect. Concerning the integration aspect, the fact that ICTs are open technologies that can be hooked up with relative ease to other technological systems (Mackay 1995) is important to be mentioned here. "The growing convergence of technologies,

especially in the area of micro-electronics, offer a great technological potential to integrate or merge functions, processes and divisions (van Tulder and Junne 1988, 82f). By abstracting from the specificity of the work process the computer can systematically integrate the work process as a whole.

Technological integration becomes possible through large main-frame based technology concept. In this case, access to the database is regulated centrally. Users can no longer decide how to proceed in their work process. Instead, the sequence of their acting is unequivocally prescribed by the technology as they are integrated in an automated production process.

Modern ICTs have created the vision of a factory without human beings. Calculable operations are taken over by machines and integrated in process overlapping CIM architectures. The technological integration can also cross the border of companies as, for example, in JIT systems. Modern ICTs, therefore, become the core of systemic forms of organisational restructuring; instead of focusing on single work places a holistic approach is applied, which means that the business organisation as a whole is the target of technisation.

The application of modern ICTs is seen as leading to some kind of a technology-based hyper-Fordism. Systemic forms of organisational restructuring, however, by no means imply such kind of technology based hyper-Fordism. Instead, they only imply an organisation perspective from above, taking the whole into account. Systemic restructuring does not mean either that a technology deterministic perspective is applied. On the contrary, we can argue that modern ICT-based systems have to become much more flexible, as they have to be adapted to changing demands from the market. When the market demand is becoming specialised and there is a trend towards rapidly changing consumer preferences, ICT-based production flexibility is rather important, which at the same time causes a breakdown of the Fordist production structure.

Actually, modern ICTs can be seen as rather open technologies concerning organisation forms. As Naschold puts it: "Information technologies due to their structure of a hard ware and soft ware component are depending on the development of a separate social model of production. The regulation of social relationships is an endogenous and functionally necessary part of the development of the technological system..." (1986, 232).

This, of course, does not mean that technisation and organising are strategically independent. On the contrary, there is a strong mutual dependency but not a one-way determination, as is assumed by technological determinism. Neither technology nor organisation is fixed but both change in relation to each other; therefore, the design of information technology and the design of organisation forms are largely becoming the same task. Modern ICTs offer opportunities to manipulate both the communication technologies themselves as well as the organisation contexts in which they are embedded according to specific aims. They provide, as Fulk and DeSantis argue, more than traditional technologies "occasions" for structuring the production process according to other drivers of change such as innovativeness, cost-saving, control or quality (1995, 337).

Besides technisation and organising we can identify enculturation as the third strategy of integrating work processes. This aspect of cultural integration becomes particularly important in decentralised organisation structures in which the agency is freed from organisation norms and the dictating control of machine pace, and in which self-organisation and direct co-ordination dominates. In such a structure, there is always the risk that organisation members pursue departmental or subgroup aims and interests without taking the overall goal of the whole company into account. A "strong" business culture is seen as a possible tool to integrate workers socially, to make them share the overall values and to see the "world with the eyes of the company" (Berger 1993, 16). Sometimes also the term "vision-based management" is used. Common values are seen as the core of the business culture. The intention of creating a strong business culture is in the first place to commit workers to the company; they should identify themselves with the company and see the company's aim as supporting their own interests. Building up trust relationships may be seen as the most important function of a strong business culture.

Furthermore, modern ICTs can be conceived of as media connecting people with each other as well as with machines as more and more communication within and between companies is technically mediated. The media perspective is dealing with non-formalised communication in the first place. Here the focus is not upon the capability of modern ICTs to substitute for tacit knowledge, from this perspective the emphasis is on their potential to reinforce human interaction and interactive mode, etc." (1997, 28). For modern ICTs as media, the following aspects are particularly important:

- the dramatic increase in the speed of communication, with high volumes of data moving from one location to another at rates unimaginable even a decade ago
- a sharp rise in communication bandwidth, with more information of multiple frequencies travelling at the same time down a common line
- the possibility of combining text, voice, video, data, and/or graphics within a multimedia communication system (Fulk and DeSantis 1994).

One of the major impacts of modern ICTs as a medium is a further acceleration of the innovation process as workers can for example co-construct a new product. Furthermore, ICTs provide workers with a technical infrastructure on the basis of which they can continuously reshape their relationships among each other. In some way, we can argue that modern ICTs can replace organisation rules. The function of organisation rules is to create stable relationships between people and of people with machines to secure continuous production. However, in a technical network, working people can continuously produce, reproduce and also change their relationships at the same time. There are, however, limits for modern ICTs to function as a medium; the exchange of distance-sensitive knowledge, for example, still needs face-to-face contacts.

The newest trend concerning the media perspective is the integration of company internal digital information systems into a public information structure. Two technological developments are important here: interactive multimedia telecommunication applications, on the one hand, and the use of the Internet for commercial purposes including the development of new services on the other. From the viewpoint

of companies, the Internet offers an interesting platform for advertising their products and services. At the same time, a great demand for new information and communication services is developing. We can expect that in the future interactive multimedia applications will be developed, which will support tele-co-operation within companies, co-operation within supplier networks and, increasingly, communication and co-operation with customers.

Proceeding on the assumption that modern ICTs will primarily be used to connect people with each other in their work and to support the exchange of tacit knowledge in the future, one might criticise the current debate on information society for the fact that too high an importance is attached to information and information technology as key factors in economic and social transformation. "What characterises the current technological revolution," according to Castells, "is not the centrality of knowledge and information, but the application of such knowledge and information to knowledge generation and information processing/communication devices, in a cumulative feedback loop between innovation and the use of innovation" (1997, 32).

It is the immediate feedback between knowledge generation and knowledge application in processes of learning by doing and learning by interacting that becomes the key aspect of the emerging information or knowledge society. We can here speak of some kind of spiral movement. Through learning by doing, new knowledge occurs and is directly applied in the production process, and, therefore, leads to an acceleration of the innovation process. Innovation becomes a normal part of work, which creates new opportunities for learning. As such, a spiral movement is at the very core of individual and organisational learning and, therefore, it might be even more appropriate to talk about a learning economy.

The following table lists the various functions of modern ICTs in a schematic way and illustrates the aim related to single functions.

Table 1: Alternative perspectives on information technology.

Metaphor	Function	Aim
ICTs as a tool	support for workers in the work process	increase quality and rapidity, improve capability to cope with complexity
automation technology	elimination of human labour	costs saving
control device	monitoring and steering the work process	avoid defects, adaptation to environmental changes
feedback mechanism	support learning processes	innovation
organisation technology	integration of tasks, functions and processes	organisational flexibility, transparency,
medium, network technology	creation of technical connections among people and with machines	rapid exchange of information and knowledge

CONCLUSIONS

Above we have presented alternative views on modern ICTs. These views can also be interpreted as “Leitbilder” of applying these technologies. Here we will differentiate between “technological control of production”, on the one hand, and “meaning-based co-ordination of actions” on the other, as two different “Leitbilder” of developing ICT-based systems (Boes 1997). In the case of the first ‘Leitbild’, the aim is to eliminate or at least to control human labour by transforming tacit into codified knowledge. This makes it possible to reduce alternatives of acting drastically; the workers have to follow fixed and standardised sequences of acting, controlled by the pace of the technical sys-

tem. This “Leitbild” fits with the logic of the traditional Fordist production model.

In the case of the second “Leitbild”, control is not an aim for applying modern ICTs. Instead, the information system represents objects of reality and options of their processing. Work, in this case, can be characterised as interpreting the meaning of symbols. Tacit knowledge is seen as a valuable resource, as it is crucially important for developing new and more efficient ways of acting. ICTs, in this case, become media which open up the opportunity of permanent communicative connectivity. They are not used to eliminate tacit knowledge by transforming it into codified knowledge but to support its rapid and continuous exchange among workers. This allows for a collective interpretation of information and the development of joint ways of acting.

Our arguments so far clearly indicate that the development of the new organisation logic is associated with a changing view on modern ICTs. The traditional perspective sees modern ICTs mainly as a tool which not only supports the individual employee in his work but also replaces human labour and functions as a control device in the hands of the management. Furthermore, the traditional perspective interprets modern ICTs as a strategy to integrate and automate whole production processes, the consequence of which is that employees are steered by the pace of the autonomous technical system in their work. This view on modern ICTs fits very well with the logic of the traditional Fordist production model aiming at eliminating and controlling human labour. The application of modern ICTs then leads to some kind of hyper-Fordism. The interpretation of modern ICTs as a collective tool and as a medium that connects people fits with the new organisation paradigm characterised by the logic of intra- and inter-organisational networks.

REFERENCES

- Barley, S.R. (1986): Technology as an Occasion for Structuring: Evidence from Observation of CT Scanners and the Social Order of Radiology Departments. *Administrative Science Quarterly*, 31, pp. 78–108.
- Baukowitz, A. (1996): Neue Produktionsmethoden mit alten EDV-Konzepten? In Schmiede, R. (Hrsg.): *Virtuelle Arbeitswelten: Arbeit, Produktion und Subjekt in der Informationsgesellschaft*. Berlin: Edition Sigma, pp. 49–71.

- Bell, D. (1976): *The Coming of Post-Industrial Society: A Venture in Social Forecasting*. New York: Basic Books.
- Berger, U. (1993): *Organisationskultur und der Mythos der kulturellen Integration*. In Müller-Jentsch, W. (Hrsg.): *Profitable Ethik - effiziente Kultur: Neue Sinnstiftungen durch das Management*. München und Mering: Rainer Hampp Verlag, pp. 11-38.
- Boes, A. (1997): *Formierung und Emanzipation. Zur Dialektik der Arbeit in der "Informationsgesellschaft"*. In Schmiede, R. (Hrsg.): *Virtuelle Arbeitswelten: Arbeit, Produktion und Subjekt in der Informationsgesellschaft*. Berlin: Edition Sigma, pp. 49-71.
- Brandt, G. et al. (1978): *Computer und Arbeitsprozess. Eine arbeitssoziologische Untersuchung der Auswirkungen des Computereinsatzes in ausgewählten Betriebsabteilungen der Stahlindustrie und des Bankgewerbes*. Frankfurt/New York.
- Castells, M. (1997): *The Rise of the Network Society*. Maldon Mass./Oxford: Blackwell Publishers.
- Eason, K. (1988): *Information Technology and Organisational Change*. London/New York/Philadelphia: Taylor & Francis.
- Ernst, D. & Lundvall, B.-Å. (1997): *Information Technology in the Learning Economy - Challenges for Developing Countries*. DRUID Working Paper No. 97-12 of the Danish Research Unit for Industrial Dynamics, Aalborg.
- Fulk, J. & DeSantis, G. (1995): *Electronic Communication and Changing Organizational Forms*. In *Organization Science*, Vol. 6, No 4.
- Gould, St. J. (1980): *The Panda's Thumb: More Reflections on Natural History*. New York: W.W. Norton.
- Hedlund, G. & Rolander, D. (1990): *Action in Heterarchies - New Approaches to Managing the MNC*. In Bartlett, C.A., Doz., & Hedlund, G. (eds.): *Managing the Global Firm*. London/New York: Routledge, pp. 15-46.
- High Level Group on the Information Society (1994): *Europe and the Global Information Society. Recommendations to the European Council (Bangemann Report)*. Brussels.
- Kern, H. and Schumann, M. (1984): *Ende der Arbeitsteilung? Rationalisierung in der industriellen Produktion: Bestandaufnahmen Trendbestimmung*. München.
- Krämer, S. (1989): *Geistes-Technologie. Über syntaktische Maschinen und typographische Schriften*. In Rammert, W. & Bechmann, G (Hrsg.): *Technik und Gesellschaft. Jahrbuch 5: Computer, Medien, Gesellschaft*, Frankfurt/New York, pp. 38-52.
- Lash, S. (1994): *Reflexivity and Its Doubles: Structure Aesthetics, Community*. In Beck, U., Giddens, A. & Lash, S. (Eds.): *Reflexive Modernisation. Politics, Tradition and Aesthetics in the Modern Social Order*. Cambridge: Polity Press.
- Lyon, D. (1988): *The Information Society. Issues and Illusions*, Cambridge: Polity Press.

- Mackay, H. (1995): Theorising the IT/Society Relationships. In Hearp, N., Thomas, R., Eison, G., Mason, R. & Mackey, H. (Eds.): *Information Technology and Society. A Reader*, London.
- Miles, I. & Robbins, K. (1994): Making sense of information. In Robbins, K. (Ed.), *Understanding Information Business, Technology and Geography*. London/New York: Belhaven Press.
- Naschold, F. (1986): Politik und Produktion. Thesen zur Politik und Technologieentwicklung In Hartwich, H.H. (Ed.): *Politik und die Macht der Technik*. Opladen.
- Piore, M.J. & Sabel, C.F. (1984): *The Second Industrial Divide*. New York.
- Robbins, K & Webster, F. (1997): From ICTs to Information: Changing Conceptions of the Information Age. In *Information, Communication and Society*.
- Schienstock, G. (1997): The Transformation of Regional Governance. Institutional Lock-ins and the Development of Lean Production in Baden-Württemberg. In Whitley, R. & Kristensen P.H. (eds.): *Governance at Work. The Social Regulation of Economic Relations*. Oxford: Oxford University Press, pp. 190-208.
- Soete, L. (1996): Social impacts of the information society - National and community level. In Finnish Institute of Occupational Health: *Work in the Information Society*. Helsinki.
- Streeck, W. (1987): Neue Formen der Arbeitsorganisation im internationalen Vergleich. In *Wirtschaft und Gesellschaft* 3/1987, pp. 317-335.
- van Tulder, R. & Junne, G. (1988): *European Multinationals in Core Technologies*. New York: John Willy.
- Walsh, J. & Ungson, G. (1991): Organisation Memory. In *Academy of Management Review*, 16., pp. 57-91.

Information Occupations, Informational Work and Social Divisions

The Landscape in Finland and Hungary

RAIMO BLOM
HARRI MELIN
PETER ROBERT

In this chapter we ask what kind of structural changes has taken place in the work organisation due to computers and the use of new technology in general. We also ask if there are social divisions to be seen in the labour markets due to technological change. The main focus is in the informational positions in the labour process. We use Finland as an empirical case. Here we follow the methodological idea of analysing the most developed case.

Our chapter is a contribution to the theory of information society with a strategic case study. We also present data concerning the development of the information society in post-socialist countries. In this respect our main focus is with the Hungarian case.

American sociologist Daniel Bell published nearly 30 years ago a book titled *The Coming of Post-Industrial Society. A Venture in Social Forecasting* (Bell 1973). At that time nobody talked about the coming of the information society, sociologists were interested in consequences of automation. Bell's book was an important milestone in the popular discussion concerning the information society. In the book Bell predicted that in the post-industrial society the most important economic branches will be services and most important social groups will be professional and technical occupations.

Today many journalists, politicians and researchers share the idea that we already live in the information society. Newspapers are full with articles how "the information society is with us" or "how

the information era requires life long learning” or how “the information society will change the leisure time”. But what do we actually understand with the concept “information society”? There seem to be as many definitions as there are definers. However, almost all seem to accept that networking and globalisation are vitally important in the new times. An other joint notion is that information will play a key role in all spheres of life.

During the last years the discussion concerning the information society has increased enormously. Newspapers, TV and internet are full with articles and programs about the information society. Information society is considered to be the inevitable future of European societies. Also social scientists have actively been discussing about the topic. On the basis of the above mentioned discussions we raise some basic questions connected with the coming of the information society. In the following we ask:

1. What do we understand with “informatisation” and what are its socio-historical foundations? (see Blom 1988, Lyon 1988, 1994; Martin 1995).
2. How is the information society linked with a more global societal change? (see Freeman-Soete 1994; Freeman et al. 1995, Castells 1996)
3. What does the change mean at the level of positional structure (a) as a change in the division of labour (information sector, information occupations; see Lyon 1988; Blom 1988; Paakkolanvaara 1988; Tilastokeskus 1997) and the world-wide polarisation of skills (Freeman et al. 1995) and (b) as a change in the foundations of power and power resources (Heap et al. 1995, 101-178; Korvajärvi 1992 and Kortteinen 1992).

The change occurs also inside the occupational and working positions as the transformation of qualification demands (skills and education) and the change has its effects on work and reproduction situations. The change towards information society is a significant part of development strategies (Freeman et Al. 1995) of different societies. It is generally expected to be a significant route to the success. Finally the transformation has its effect on the theories of structure and social change of modern societies (see Lyon 1994; Webber 1995; Martin 1995; Heap 1995).

THE LANDSCAPE

Theory and policies

Information technology is penetrating the whole society, it can be found in almost all of societal processes. This global change is caused much of dreams and fears discussed under the title "information society". The information society is enthusiastically hailed already by such well-known authors like Toffler (1971), Bell (1973 and Naisbitt (1982). For example Bell (1973, 26, ref. 19) writes about new society based on knowledge that the "development of new forecasting and 'mapping' techniques makes possible a novel phase in economic history - the conscious, planned advance of technological change, and therefore the reduction of indeterminacy about economic future".

In his book *The Rise of the Network Society* Manuel Castells (1996) has presented a very sophisticated thesis about the structural change that is occurring in the global context (see also Kasvio in this volume). Instead of the information society Castells talks about informational society. In informational society the production, delivering and processing of information is an important source of power. All economical activities are organised in forms of networks. Networks are the most effective for of production, delivering and processing of informational products. Informational society is also global. All elements of production, consumption and circulation (capital, labour force, raw materials, management, information, technologies and markets) are organised in global scale.

"The information society" has been an important strategy in European level White Paper of 1993 (European Commission 1993). The so called Bangemann report (High Level Group 1994) suggests the development of whole Europe to an integrated information society through market-driven revolution. The Report promised a lot, among other things "a more caring European society with significantly higher quality of life and a wider choice of services and entertainment" and "more efficient, transparent and responsive public services, closer to the citizen and at lower cost. All that works against the creation of divided society according to the access to and acceptance of technological development. In a word, social integration and cohesion is ensured. Later in Action Plan reports (1994, 1996) the strategy

was put to legislative tasks, economic means and problems to be solved. The questions moved from the improvement of economic environment and information technological network to those of information security and intellectual property rights.

All these scenarios has increased both hopes and fears. The biggest threat that has emerged is connected with employment. What is the future of work in information society? On the other hand hopes are also connected with work. The wishes are there after reached those of the getting free of monotonous and heavy work and the increase of autonomy and equal communication at work and the coming to the new phase of direct democracy.

Information work and information workers

In his book on information society Frank Webster (1995) has analytically distinguished five different definitions concerning the information society. According to him there are:

- 1) technological,
- 2) economic,
- 3) professional,
- 4) spatial and
- 5) cultural perspective.

Though all these perspectives are interesting and they have their value of their own, there is still demand for a sociological analysis. Of course there is a lot of theoretical literature, but we are short of concrete sociological research dealing with changes in occupational structures, division of labour, labour process.

The existing theoretical approaches share one common feature. They all see the growth of information as a basic reason behind all the changes that are occurring all around the society. These changes are considered to be important especially in the economical basis and in the working life. A radical change is taking place a change from the industrial society towards an information society.

In most theories the structure of economy is supposed to develop so that the share of services becomes more important than the share of industries. This kind of scenario was presented already by Daniel Bell at early '70s (Bell 1973). According to Bell information will be the engine of the coming service society. The traditional means of produc-

tion will be replaced by intellectual technology. Also the structure of the labour power will be changed dramatically, the core will consist of highly educated experts and other white collar employees. The majority of the labour force will work in information occupations in stead of traditional industrial jobs.

Also other well known approaches to the information society do share the same vision about the changes in economy and in occupational structure. Alvin Toffler (1981), Yoneji Masuda (1981) and John Naisbitt (1982) all present a similar kind of positive utopia about the coming information society. All things in the modern society will develop towards positive solutions. There seem to be no losers, everybody is winning.

First systematic theories about information society and information work are presented by Fritz Machlup (1962) and Marc Porat (see Webster 1995). In his book *The Production and Distribution of Knowledge* Machlup divided information occupations into eight groups:

- 1) transporter (postman)
- 2) transformer (secretary)
- 3) routine processor (book keeper)
- 4) discretionary processor (supervisor, nurse)
- 5) managerial processor (manager)
- 6) interpreter (interpreter, translator)
- 7) analyzer (historian, librarian)
- 8) original creator (researcher)

Machlup divided information economics into: education, media, information technology, information services and other activities. According to him this division allows a statistical analysis of the significance of different sectors in national economy (see Webster 1995, 11).

The most widely used analysis about the development of information economy and information work is by Marc Porat. Porat's article *The Information Economy: Definition and Measurement* is about USA entering the age of information society. He divided information economics into primary and secondary sectors and to third sector which remains out of these two. To the primary sector belongs all those branches which value could be easily measured. The rest was part of the secondary sector. By using these kind of criteria Porat estimated that at the end of the 1970s almost half of the American

economy was a part of the information economy (Porat 1977, see also Webster 1995, 12).

Porat divided the information occupations into three groups. Into the first group belongs those whose main duty was to produce and sell information (e.g. scientists, teachers, journalists). The second group consists of those who collect and distribute information (e.g. managers, secretaries). The third group only used information technology, their main duty was to support the work of the two other categories.

At the end of the 1980s Statistics Finland published a report about information work (Paakkololanvaara 1988). The report was heavily influenced by Machlup's work. In this report information work was divided into producers, distributors, users, processors, operators and fixers. Put together the information work was about one fourth of all employment. According to recent calculations about half the Finnish wage labourers are information workers. (www.stat.fi)

At a higher level of abstraction the talk about information work information occupations can be connected to the growth expertise and professionalism. We are more and more depending on specialists. Production processes in different branches of economy are so complicated that a single worker just simply cannot cope all details. Occupation structure becomes more and more complex and information penetrates all occupations.

The Development of Information Society in Finland

Sociology can discuss different topics either on abstract level or giving concrete examples. In the following we use Finland as a case in point. Why Finland, which is a small country in the periphery of Northern Europe? Analysis of information society focused on Finland might sound surprising. In many respects Finland is the best example, a true laboratory. Comparative analysis show that in Finland the information society is most developed on the earth.

In April 1997 Statistics Finland published a research report *With Information to Information Society*. The report is full with information concerning the development of information society in Finland. The statistics are impressive. It seems that Finland is the leading country in the world to develop the information society.

There are more mobile phones users than in any other country. In Finland we had 29 mobile phones per 100 inhabitants in 1996. At the beginning of the year 1999 there are more mobile phones than traditional phone connections in the country. Finland is also the leading country in using Internet: we have about 65 Internet connections per 1000 inhabitants. According to latest calculation every second Finn has access to Internet either at work or at home. So in Internet-connections and in mobile telephone connections Finland is at the top. (Tilastokeskus 1997, 27-47)¹

The coming of the information society can also be seen in occupational change. According statistical calculations about half of all wage employees are working in so called information occupations and the role information industries in our national economy is growing rapidly.

According to surveys concerning the capacity of information technology to fulfil the needs of business life Finland is also the number one in the world (The World Competitiveness Year-book 1996). In other indicators, like micro computers per capita, Finland is also near the top (seventh in the world in 1995; *ibid.*, 9). In addition the use of information technology is relatively cheap in Finland (Tilastokeskus 1997). In short, the infrastructure of information technology is well-developed in Finland. This is also the result of the world ranking of countries using many indicators of the information technology infrastructure (Towards the Third Revolution 1996).

Today the Finnish media seem to be convinced that we are already living in the information society. In daily newspapers, radio and TV there are news, stories and articles about living, working, or surviving in the information society. It is not only media that is promoting the idea. Also our schools are engaged with the project. All around the country there is a real euphoria among young pupils and their teachers about the coming of the information society. All the elementary schools and high schools are today equipped with work stations linked with internet.

The discussions about the change of the epoch and the coming of a new era are familiar in the field of social sciences. Researchers have discussed for more than a decade about structural changes that are

1. Newer statistical data from Statistics Finland is available. In 1999 there was 65 mobile telephone connections per 100 inhabitants; number of Internet connections was 121 per 1000 inhabitants.

taking place. Concepts like post-modern society, risk society or network society are all attempts to catch the change. Idea about the information society is in line with these theories.

However the discussion about the information society has been more visionary. There are futurological, political and sociological contributions. There are also governmental programs on this topic. For example the Finnish government has produced for a couple of years ago an official program on making Finland into an information society. In the Finnish case the official information society strategy, as it is called, has three major elements:

- renewing Finland into a information society
- developing information industries
- investing into research and knowledge

In the program the state authorities assume that the information society will be accomplished after the following tasks have been done: Firstly information technology and information networks should be widely used as tools to modernise both private and public sectors. Second task is to increase the role of information industries so that they have become an important branch of economy. Thirdly we have to invest into information and media know-how. According to the program we must also provide the whole population basic know-how and possibilities in using information society services. Finally our information infrastructure have to be built as competitive as possible.

This program was renewed at the beginning of the year 1999. In the newest program the main emphasis was put on welfare, interaction and employment (see www.sitra.fi). The good aims are supposed to be reached by using different networks. The program also gives a couple of key projects which will be prioritised. Among these are personal navigation in internet, electric services and new learning environments.

Into the Finnish scientific discussions information society appeared in mid 1980s. First contributions were either full with futurologist optimism or technological determinism about more or less inevitable coming of the information society. What is interesting to notice is that the first contributions were presented by engineers.

Sociological discussion started at the same time. At the first phase the discussions concerned the condition of information society in Finland, the main points in the international discussion and the emergence of information occupations. Matti Kortteinen published a book, where he said that information society will be a totally new social formation, in the information society the focus of production is in making information goods. (Kortteinen 1985, Kortteinen, Lehto, Ylöstalo 1987, Paakkolanvaara 1988)

During the 1980s the discussion concerning the information society were wide and open. Contributions were blurred with many kinds of theories explaining structural change. (e.g. Virtanen 1987) Heavy emphasis was also put on the changes that new technologies would have on wage work. The most usual way of presenting the emergence of new information society is to show that a wholly new industrial branch has grown, so called fourth sector, and its economical significance and its share of economically active population is increasing rapidly.

So far all the major structural changes that have occurred in Finland have been changes between branches of economy. During the post-war period there was a major shift from agriculture and forestry to other branches, and after 1975 a minor change from industry to the service sector. The changing relative strengths of different branches can be seen both in the changing structures of social classes and strata and in the changes in the occupational structure. It is possible that the on going structural change has different effects in this respect and that it will primarily affect the division and organisation of labour within the different branches.

What about the information workers? In the Finnish context the most sophisticated statistical calculations are presented by Elli Paakkolanvaara who has followed the development of information occupations in Finland. According to her calculations the growth of information occupations between the years 1980-85 was clearly faster than the growth of the whole employment. During that time the whole employment grew 4 % and information occupations 15 %. (Paakkolanvaara 1988, 67)

Table 1. Information occupations 1980–1995 (in thousands)

	1980	1985	1995	1980–1995 (%)
Producers	224	282	334	49
Distributors	100	117	137	37
Users	109	132	151	39
Processors	215	229	213	-1
Operators and fixers	109	108	75	-31
TOTAL	757	868	910	20

Source: Statistics Finland 1997

Between the years 1980–95 the number of employees working in the information occupations has increased with 20 %, while the total employment has decreased at the same time with more than 230 000 persons. In percentage the decrease in total employment has been about 10%. Statistics also show that the relative size of the information sector has grown even more than 20 %.

According to the statistics 44 % of the wage workers were actually working in information occupations in the year 1995. In the information sector there were operating about 16 000 private companies, and information sector made over 12 % of the turn out of all Finnish companies. The value of the information sector production increased over 40% between the years 1991–94, at the same the growth in average was 5%. Increasing share of R&D funding is allocated to the information sector, being in the middle of the 1990 more than one third of all R&D investments.

These figures seem to convince us that Finland is already an information society. But is it really, what do sociologists say about the coming of the information society? It is quite obvious that technological change has been rapid. What we may call as technical infrastructure of the information society, has grown rapidly, the number of mo-

bile poste is indicating this. But still only one third of the households owns a mobile phone, and the situation is the same with pc:s. If we then look at Internet, only about 15 % of house holds have technical equipment necessary for using Internet, and a quarter of the population does not even know what the Internet is all about.

One visible feature of the growing significance of the information society has been the development of industrial production engaged in this sector. Finnish statistics show that the output of the manufacturing production in the information sector has increased rapidly. If we compare the development of the number of firms, financial turn over and number of employees between all firms and firms in information sector, the result is that information sector is really growing far more rapidly than manufacturing production in average. For example, the number of all firms in Finland decreased a bit between the years 1993–96, at the same time the number of firms in information sector increased with 15 %. The situation is the same if we look at turn over, the growth in the information sector was more than two times as big as in manufacturing in average (Statistics Finland 1997).

The above mentioned growth figures are impressive. In spite of this, the biggest and most important firms in the Finnish economy, except for Nokia, are still working in the traditional branches such as paper and pulp or machine building. And in these branches the Finnish corporations are among the biggest ones both in European and global context.

The rapid growth of productivity has also been connected with information production. In general the productivity of Finnish capital has not increased as it was predicted. Of course there are examples of rapid growth (like Nokia) but in general there has not been any revolutionary change.

The growth of the information sector has not changed the general image of Fordist work organisation in Finland. Managerial hierarchies are not disappeared and post-fordist practices are still rare. Also such divisions which are based on gender or regions are playing an important role in workers work situation.

The Development of information society in Hungary

Data presented about class division indicate that social structure of modern societies changes over time and there is a variation among nations with respect to their industrial development and level of modernisation. Modern societies are on the way from being industrial ones to being post-industrial ones, - or using the term by Esping-Andersen (1993): post-fordist. In post-industrial societies the increasingly dominant service sector tend to influence the distribution of labour force and the labour market processes. Crompton, Gallie and Purcell (1996) emphasise the importance of technical development, especially the spread of computers which “deskills” the simple white-collar work and “upgrades” the blue-collar work by decreasing the formerly characteristic division between them. This is the process how modern nations move to the stage of information society.

Information society is definitely less developed in post-communist countries compared to Western market economies. Taking some indicators we can compare the same five post-communist countries (Bulgaria, Czech Republic, Hungary, Poland, Slovakia) with respect of availability of certain modern consumer items in their households. Two items, personal computers and satellite connection can be considered as indicators of “level of information society”, and two other durables (video, microwave) serve as a basis of comparison.

Table 2. Proportion of some modern consumer items in five post-communist societies (%)

	Bulgaria	Czech Rep.	Hungary	Poland	Slovakia
PC	1.4	5.8	8.6	13.2	6.4
Satellite	1.7	8.8	20.6	11.4	13.3
Video	23.7	24.0	37.5	53.7	22.5
Micro	2.2	8.1	14.8	5.1	7.5

Source: Social Stratification in Eastern Europe after 1989. International Comparative Survey, 1993. Principal investigators: Donald J. Treiman and Ivan Szelenyi (UCLA).

These data indicate that availability of personal computers in private households is the highest in Poland and Hungary takes the second place. However, one-fifth of the private households have satellite connection in Hungary and this is much higher proportion than the same rates in the other four countries. Of the two other durables used for comparison, video is more widespread than the 'information items' in all of these societies, while the availability of microwave varies a lot among countries. E.g. in Hungary more household has a microwave than a personal computer (and this is the typical situation in these countries) but the case is just reversed for Poland.

In a more recent household survey in Hungary some questions were included about the availability of the consumer items in private households. These data indicate a moderate increase by 2 % in availability of personal computers in private households in Hungary over 5 years. The data-set does not contain question on satellite but another question on internet connection were included. About 1 % of private households is connected to internet in Hungary. If only those households are counted where computer is available, one-tenth of households have internet connection. (The proportion of those households having a video did not increase over 5 years but more than twice as much households have microwave than earlier.)

The availability of 'information items' in Hungary varies by both regional differences and social status of head of household. For measuring the latter feature, education of head of household is applied. The more urbanised the place of residence, the higher the proportion of households who possess personal computer. The same holds for households with internet as well. The Budapest households own twice as much PCs or internet connections than the national average. Education has even stronger impact of being integrated into the information system in Hungary. If the head of household has a tertiary school diploma, the percentage of having a personal computer in the household is three times larger than the national average.

INFORMATION WORK: SECTORS AND POSITIONS

In the following we are analysing more closely the development of information society. Our focus is in the sociology of work. We are interested in the impact which the new information technologies have

on work. We ask can we talk about new social division that is based on informational position in labour process?

In the following presentation Information workers (= IW) are defined to be those wage workers who use information technology at work, whose level of vocational training is at least upper intermediate, and whose work requires designing of important aspects of one's work practices. ADP-users are wage workers who use micro computer or computer at work, but both or one of the two additional requirements given to the information workers is missing. Finally Others are those who do not use information technology at their work. The distribution of Finnish wage labourers according the previous criteria is as follows:

	1994	2000
* information workers (IW)	25 %	39 %
* ADP-users	22 %	30 %
* others	53 %	31 %

In public sector there are more IW (55%) than in private sector (45 %). In the case of Users the situation is the opposite. In private sector the percentage of users is 63 and in the public sector only 37 %.

Also according to industrial branches there are clear differences in information positions. In financial sector there is 20 % of IW. Manufacturing, services and trade are between 12 and 15 per cent and the other sectors are clearly lower in relative numbers of IW.

In the case of users the situation is different. The financial sector is still in the top (29 %), then come transport (24 %) and manufacturing (20 %). Although the differences of informatisation between sectors can be found statistically the formation of information society is a process of the penetration of information activities into all economic sectors and industries.

The question posed in the paper is about new social division as a consequence of the development of information society. Unlike many analysis it is not an analysis of skills (Freeman et al. 1995) or occupational structures (Castells-Aoyama 1994) but 1) the analysis of a combination factors forming the work and reproduction situation, and 2) the structuration of those factors in different positions of information work.

In seeking the answer the change in work and reproduction situation of different groups (information workers, users of information technology at work and non-users) in 1988 and 1994 is also analysed. Finally the form of differentiation or division is asked. Is it a polarised structure as suggested by many authors (about the literature, Castells & Aoyama 1994, 8) or more like a continuous hierarchy.

The main features discussed in the following are autonomy, authority and intensity of work together with some other aspects of work situation and climate.

The most general hypothesis about the effect of the progress of information society to working life is that of positive change. What was expected to happen is the rising development of autonomy and independence, qualifications and skills and the levelling of power hierarchies and the improvement of socio-cultural atmosphere. At the level of groupings according to positions of information it means that the information workers (IW) should be in better situation than the ADP-users (Users) and those outside the both above mentioned positions (Others)

The difference between IW and other categories (Users, Others) is very clear in all main autonomy indicators. The exception is supervision which is also a different matter, i.e. the question of control. The IW is as much (or more) controlled in productivity and in the quality of work as the other categories.

In the design of product the line of group differences is a curve where the users are in worse position than the category of Others (non-ADP-users). The Users' position is positive compared with the Others in the possibilities to decide the pace of work or what to do (work tasks).

Table 3. Autonomy and positions of information work* (%)

	Information workers		ADP-users		Others	
	1988	1994	1988	1994	1988	1994
Design of product or service (much)	44	47	24	15	30	33
Solving of non-routine problems (much)	47	53	23	17	24	18
Decides:						
- arriv./leaving time	27	28	12	15	15	15
- take a day off	24	29	19	17	17	12
- slow down pace	80	74	66	64	61	52
- choose task	65	73	45	45	37	35
Under supervision:						
- productivity	81	84	75	76	74	75
- time used/ assignment	17	20	27	31	32	34
- quality of work	81	84	79	82	77	76

Table 4. Authority and position of information work (%)

	Information workers		ADP-users		Others	
	1988	1994	1988	1994	1988	1994
In position of supervision	41	54	21	23	24	17
The content of activity of supervision						
- tasks	53	93	31	88	33	82
- means of work	41	77	27	67	27	70
- intensity of work	37	66	21	65	23	56
Decides about:						
- amount of personnel	2	4	2	0	1	1
- the budget	2	3	2	1	2	0
- problems of gender equality	-	7	-	1	-	3

Table 5. The Intensity of work and position of information work (%)

	Information workers		ADP-users		Others	
	1988	1994	1988	1994	1988	1994
Physically strenuous (often or always)	7	12	12	16	44	48
Mentally strenuous (often or always)	65	71	52	45	53	47
Time pressures (often or always)	72	70	58	62	62	66
Too much work	62	64	47	44	50	52

Table 6. The most important thing in present job and positions of information work (%)

	Information workers	ADP-users	Others
A good pay	6	9	10
Safe & secure work	26	48	44
Simple & easy work	1	2	1
Interesting & full of change	48	31	29
Possibilities for advance in career	2	1	1
Possibilities to own initiative	9	3	4
Personal relations	6	3	7
Something else	2	3	4
Total (%)	100	100	100

The differences between IW and other categories has even increased in work autonomy during years 1988-1994. this change is more marked in positive, creative aspects of autonomy (design of own work, non-routine problem-solving) and its is lacking from the supervising control. The work productivity of IW is more controlled than that of the other groups.

The positions of supervision and decision making are the indicators of power in the enterprise and work place level. In the holding of those positions there is a clear difference from IW to other categories. The same is true also with the decision making. Even from understandable reasons there are few persons of those positions where one can him-/or herself decide some key aspects of work process and organisation.

The differences between IW and other categories have slightly increased from 1988 to 1994. In 1994 IW is 2.5-3 times more often in the positions of supervision than the other categories.

The picture about the intensity of work is rather clearly reverse compared with that of autonomy. IW is the group who has the most mentally stressed work from all, most time pressures in work and most often too much work. The mental strenuousity of work has even increased more in the category of IW than in other categories between years 1988 and 1994. The physical strenuousity separated the category of "others" from the IW and the users.

To sum up: the IW-position do not take away the strenuousity of work and the work pressures. This in the line of other studies concerning Finnish working life (Ylöstalo & Kauppinen 1996). The story told by our results says even more. IW is even in the van of the intensification development of working life.

The IW is also clearly different in 1994 what comes to total profile of the things assisted important in one's work. Safe and secure work is the main thing among ADP-users and among non-users. In IW-group the focal point is interesting work and possibilities to be initiate.

The differences of income are very marked between IW and other categories and what is most important the differences has clearly grown between 1988 and 1994. In the year 1994 the users get under 70 per cent from the incomes of IW and the group of "others" under 65 % from it.

Also the other indicators give the same picture. Sufficiency of incomes and also the career possibilities are better in the group of IW than in the other categories. The difference between users and non-users is seen only in the case of incomes and the difference is changed in same degree in both categories.

Table 7. Reproduction and rewards and position of information work (%)

	Information workers		ADP-users		Others	
	1988	1994	1988	1994	1988	1994
Incomes (index, entire population = 100)	127	135	102	94	95	86
Sufficiency of incomes (the difference of "less than needed" and "more than needed")	-	0	-	14	-	13
Career possibilities (decreased minus increased during last 5 years)	-	7	-	14	-	14

The previous analysis has proved that there are real differences between the information workers and other wage employees. The main results are summarised in the following scheme:

	PRESENT SITUATION		CHANGE 1988-94	
	IW/U	IW/O	IW/U	IW/O
Autonomy: design	+			
Autonomy: high problem-solving	+	+	+	+
Authority	+	+	+	
Intensive work: physically	-			
Intensive work: mentally	+	+	+	+
Incomes	++	++	++	++
Security and pay vs. interesting work	++	++	no change data	

In the scheme the information workers are compared with the users (IW/U) and the non-users (IW/O).

+ = the difference is in present situation 20–40 % or over 10 % in change

++ = the difference is in present situation over 40 %

- = the difference is negative for IW.

The division line of the differences between groups is between the group of IW and the two other categories. The only exceptions where there is also significant difference between Users and Others are autonomy of design (astonishingly in favour of Others) and the physical strenuousness of work, what is key element of the work situation of non-users.

In nutshell the IW differs from the other groups in two respects. They have clearly higher incomes and favourable work conditions. The latter means the work with stimulating contents, autonomy and (some) authority. The important things in their work, relatively speaking, are not security and pay as in the case of other groups but interesting work which offers possibilities to own initiate.

The generalised interpretation of the situation is as follows. The economic depression is so hard a fact that it structurates the (work

and) reproduction situation in all groups compared. The organising issue of the structuration is the worries about reproduction in everyday life. The differentiation between groups can be seen after this. The IW have the positive pattern of overtime work possibilities and autonomy for improving economic situation. The working life of Users and Others is in contrast organised by power relations, struggle for autonomy and decision making powers at work and the avoidance of dull routine work.

It is often believed that IW has a wider meaning than that related to work situation. If so it must as a social category differentiate itself from the categories of Users and Others also by means of social identification and consciousness.

Social Portrait of Information workers

Even the emphasis in this article is the differentiation of work situations, an outline of the social portrait of IWs is also needed for the picture of social differentiation.

We analysed the differences of IWs from Users and Others in the light of dummy correlations with some variables depicting social identification and attitudes. The IWs, Users and Others got as dummy variables the values 1 or 0. The identification and attitude variables, 23 together, measured class identification, attitudes to income distribution, "capitalist logic", the need of state intervention and ways to success in the society.

Relatively few of the variables got significant correlation with the measures of information positions. Still the social portrait of IWs appeared to be rather clear.

To the portrait of IWs belong the following statistically significant features.

- income differences justified	.23 (vs. -.03 Users and -.17 Others)
- identifies with working class	-.28 (.11 and .15)
- identifies with middle class	.22 (.00 and -.19)
- state intervention: enterprises	-.18 (.00 and .16)
- state intervention: unemployment	-.26 (.02 and .21)
- non-profit attitude	-.14 (.01 and .11)
- success: being ambitious	.11 (.05 and -.14)

IW differentiates itself from the other categories mainly through two features: protocapitalist attitudes and middle-class identification. They believe in profit motive and are against more equal income distribution. They also trust on ambitiousness for success in life. They are against state intervention both in the case of large enterprises and unemployment.

IWs really differentiate themselves from the Others. It can be seen clearly from the opposite directions of correlations, all of which are also significant (at the level of .01, 2-tailed) The category of Users is mainly without any profile of its own. The only significant correlation is the identification with working class against the negative correlation of IWs.

If the picture of IWs at work was that of better working conditions and incomes, the social portrait is that of modern (wage labourer) petty bourgeoisie near the sense given to it already by Nicos Poulantzas (1975).

SOCIAL STRUCTURE OF THE INFORMATION SOCIETY: A NEW SOCIAL DIVISION?

Social divisions are an essential part of sociological analysis of social differences and social justice. Social divisions are changing all the time. Sociology used the concept of social class to describe the most essential social divisions in the early industrial society.

New theoretical evaluations concerning post-modern era, risk society or information society together with recent experiences of economic recession have raised questions concerning the nature and type of social divisions. These issues have also had a strong influence on debates concerning the relevance of different conceptions in the field of social divisions.

The most important reason behind the re-evaluation of social divisions is social change. Different processes of social change has meant that new social divisions have emerged. Analysis concerning the coming of information society has raised the question about the restructuring of industrial branches, occupational change and changes in global economics (Castells 1996).

In this section, the class structure of modern post-industrial societies is overviewed and presented. Several publications in recent so-

ciological literature in the 1990s questioned the relevance of class in modern societies and argued that the class concept was 'dying' (Clark and Lipset 1991; Pakulski and Waters 1996).

However, advocates of persistence of class suggest that the social structure of modern societies should be based on class structure - either of a neo-marxist or of a neo-weberian type. Of the two possibilities of these classical theoretical traditions in sociology, neo-marxism or neo-weberism, the latter one is chosen for describing the social structure of information societies. The class schema to be applied has been developed for modern post-industrial (service) societies by Goldthorpe (Goldthorpe 1980; Erikson and Goldthorpe 1992).

This categorisation (labelled the EGP class schema) was designed to distinguish positions which differ in terms of labour market position, the position in the production units and employment relations. The EGP schema separates three major class situations: employers, self-employed workers without employees, and employees. Employees naturally represent the largest group of labour force. Emphasis is placed on employment relations which can be a service relation or a work contract or a relation between the two.

According to Goldthorpe (1982) one can speak of a service relation if the employer requires not simply the employee's labour, but rather his/her special knowledge and skills i.e. employee's market capacity. A service relation is a kind of employment relation where the employee's responsibility and loyalty towards the employer are vital. To ensure this, the employer provides greater autonomy and independence in work, flexible work hours, greater job security, a system of fringe benefits, the possibility and promise of professional advancement and career as well as other promotional advantages. In contrast, a work contract does not offer decision-making possibilities, independence, autonomy or flexible work hours to the employees. This contract specifies a well-circumscribed amount and type of work being strictly controlled and compensated by strictly defined amount of wage.

Obviously, the content of work cannot be independent of the employment relation insofar as the service relation creates a class of people living from salaries (the so-called salariat) which includes managers and professionals, while in the case of work contracts we can speak of a class of wage-earners, i.e. workers among whom we can draw further distinctions according to qualification or whether they

work in agricultural or non-agricultural sector. The difference between service relation and work contract crosscuts the traditional difference between manual and non-manual work. In the case of clerical jobs or workers of service sector we can speak of an intermediate link between the two types of employment relations.

The EGP class schema looks as follows:

- I. Higher grade professionals, administrators, and officials; managers in large industrial establishments; large proprietors
 - II. Lower grade professionals, administrators, and officials; higher-grade technicians; managers in small industrial establishments; supervisors of non-manual employees
 - IIIa. Routine non-manual employees (administration and commerce)
 - IIIb. Routine non-manual employees (sales and services)
 - IVa. Small proprietors, artisans with employees
 - IVb. Small proprietors, artisans without employees
 - IVc. Farmers and smallholders (self-employed workers in primary production)
 - V. Lower-grade technicians; supervisors of manual employees
 - VI. Skilled manual workers
 - VIIa. Semi- and unskilled manual workers
 - VIIb. Agricultural and other workers in primary production
- (See: Erikson and Goldthorpe 1992: 38–39)

In praxis, researchers usually apply various – mostly slightly collapsed – versions of the EGP classification. The next table displays the class distribution in nine societies from the 1970s.

Table 8. The EGP class distribution in nine societies (men aged 20-64) (%)

Legend: ENG=England and Wales; FRA=France; FRG=Federal Republic of Germany; HUN=Hungary; IRL=Irish Republic; NIR=Northern Ireland; POL=Poland; SCO=Scotland; SWE=Sweden

	ENG	FRA	FRG	HUN	IRL	NIR	POL	SCO	SWE
I+II	25	21	28	15	14	18	18	21	24
IIIab	9	10	5	7	9	9	2	9	8
IVab	8	10	7	2	8	10	2	6	8
IVc	2	11	4	1	22	10	25	3	5
V+VI	33	24	37	31	20	26	31	33	30
VIIa	22	21	18	30	21	24	19	25	22
VIIb	2	3	1	14	7	3	3	3	2
Total	101	100	100	100	101	100	100	100	99
Year	1972	1970	1976	1973	1973	1973	1972	1974	1974

Source: Erikson and Goldthorpe 1992: 193.

By the class distribution presented in Table 8, in the early 1970s, service societies were most developed in England and Germany where the proportion of service classes (I+II) is the largest. The same proportion is the smallest in the communist countries (Hungary and Poland) and in the European periphery (Ireland, Northern Ireland). There are characteristic differences in respect of self-employment (IVab). The percentages are the smallest in the two communist countries. In Hungary, the proportion of self-employed farmers is also low. Similarly low percentages of self-employed farmers can be observed in the most industrialised societies (England, Germany, Scotland, Sweden) as well. The proportion of self-employed farmers is large in Poland where agriculture has not been nationalised, and in Ireland where agriculture played significant role in national economy at that time.

Comparing skilled workers (V+VI) and unskilled workers (VII) larger differences can be seen in the more developed and industrial-

ised societies (England, Germany, Scotland, Sweden, also Poland), and smaller differences are shown for the less developed and industrialised societies of the 1970s (France, Ireland, Northern Ireland, Hungary). Hungary is unique with its high proportion of agricultural workers (VIIb), too, which is a consequence of lower industrialisation as well as the nationalisation of agriculture in the country.

Today all three Nordic countries are wage labour societies. Vast majority of the economically active population are wage labourers. The size of the entrepreneurial population is biggest in Finland, where one fifth belong to different entrepreneur groups. This is mainly due to large agricultural petty bourgeoisie, but also other entrepreneurial groups are relatively large.

Nordic countries share a lot of joint structural elements. Among the most important ones are: 1) Open economies: export and import play an important role in the national economy. 2) In each of the countries 'the main export sector' has a special role in the economics. This sector varies from country to country. 3) Social democratic parties have had a special role in the government coalitions for more than 50 years. 4) Trade union affiliation is at high level (more than 60%) and unions have had an important role in the industrial relations. 5) Women's labour market participation is at a very high level, 50% of all wage labourers are female. 6) In the welfare models the state has had an important role also as a producer of the services. 7) Economic crisis hit the countries at the beginning of the 1990s. The crisis was especially deep in Finland and in Sweden. (Cf. Kosonen 1998)

Table 9. The distribution of classes according to Goldthorpe's typology in Finland, Sweden and Norway (%) (1)

	Finland	Sweden	Norway
Service class (I)	15	16	21
Lower grade professionals (II+V)	21	23	23
Routine non-manual (III a+b)	10	16	18
Petty bourgeoisie (IV a+b)	6	5	5
Farmers (IV c)	8	1	1
Skilled workers (VI)	17	14	13
Non skilled workers(VII)	23	25	20
Total	100	100	100

(1) *The table is based on comparative survey data gathered in Finland, Norway and Sweden during the years 1994–1995. There are both men and women included.*

The development of the class structures in the different Nordic countries has followed some what different paths. Norway and Sweden have been fore runners what comes to the growth of wage labouring population. Both in Finland and in Denmark the share of the petty bourgeoisie have been relatively big. During the 1980s and 1990s the most important feature has been the growth of the wage labouring middle classes.

Today the Nordic countries are quite close to each others. In Finland there are more farmers than in other countries. In Norway the wage labouring middle class is bigger than in Sweden and especially in Finland.

Table 10. The EGP class distribution in five post-communist societies

Men, aged 20–64 (%)					
	Bulgaria	Czech Rep.	Hungary	Poland	Slovakia
I+II	17	28	19	18	26
IIIab	3	3	4	5	5
Ivab	5	7	7	11	4
IVc	2	1	2	10	1
V+VI	27	29	3	30	37
VIIa	35	27	24	22	23
VIIb	11	5	5	4	4
Total	100	100	100	100	100
Women, aged 20–64 (%)					
	Bulgaria	Czech Rep.	Hungary	Poland	Slovakia
I+II	28	24	28	26	29
IIIab	18	27	27	28	25
IVab	3	4	6	6	3
IVc	1	1	1	13	1
V+VI	12	12	14	9	13
VIIa	26	28	24	16	22
VIIb	12	5	2	2	7
Total	100	101	100	100	100

Source: Social Stratification in Eastern Europe after 1989. International Comparative Survey, 1993. Principal investigators: Donald J. Treiman and Ioan Szelenyi (UCLA).

In the referred monograph by Erikson and Goldthorpe, the EGP classification is applied for more developed and industrialised and less developed and industrialised market economies as well as for communist societies of the 1970s. Since that time more than 20 years has gone and this time interval has brought significant changes in the social structure of these nations. Moreover, the validity of the schema has probably increased by the system transformation in the post-communist societies (cf. Robert 1998). In the next table we present more recent class distributions of post-communist countries from 1993.

First, comparing Hungary and Poland by changes in time in respect of class distribution of male earners, the proportion of service class (I+II) increased for Hungary from 15 % to 19 % over 20 years. It is not surprising that the self-employed class (IVab) has much larger share in 1993 than in 1972/73; it used to be 2 % and it has increased up to 9-11 %. In 1973, skilled- and unskilled manual worker class (V+VI & VIIa) had about the same size in the Hungarian occupational structure. By 1993, there is a significant difference in this respect, the proportion of skilled manual worker class is definitely larger (37%) compared to the proportion of unskilled manual worker class (24%), – due to the modernisation of the Hungarian industry over 20 years. Finally, the agricultural worker class (VIIb) almost disappeared from the Hungarian social structure, their rate used to be 14 % in 1973, and it dropped to 5% in 1993.

Comparing the five post-communist countries in Table 10, the service class (I+II) seems to be the largest in the Czech Republic and Slovakia. There is no significant difference in this respect between Hungary, Poland and Bulgaria. The Bulgarian class structure displays the lower economic level of the country. The proportion of agricultural worker class (VIIb) is still high (11 %), and the rate of unskilled manual worker class is larger (35 %) than that of skilled manual worker class (27 %). (The unskilled manual worker class is quite large in the Czech Republic as well.) The self-employed class (IVab) is the most extensive in Hungary and Poland where this class started to develop already in the 1980s. Self-employed farmer class is a characteristic group in the occupational structure only in Poland.

Comparing the upper and lower panel of Table 10, three significant gender differences can be observed. First, women are over represented in routine non-manual class (IIIab). Second, women are under appreciated in skilled manual worker class (V+VI). This latter feature holds especially for Poland. Third, women are over represented in service class (I+II) in Hungary, Poland and Bulgaria. There is no room here to go into the details of question of gender-segregated labour market but service class occupations in professional and administrative sphere seem to be more feminised in these three societies than in Czech Republic or Slovakia.

Information workers in the class structure

What can we then say about information work and class structure? Already in the '70s sociologists predicted the growth of the intelligentsia. Among others Alwin Gouldner (1979) wrote a book about 'new class' of intelligentsia. According to this kind of theorising knowledge will replace capital in power relations. This would mean that information workers will be a part of the elite in the future information society.

In the following we analyse the class position of information workers using Finland as the case in point. We use the same class typology as in the comparative part. According to general assumptions about the effects of new technology to the labour process we may say that those who are involved in information work are more often in managerial and autonomous positions than wage labourers in general. On the other hand informationalisation of the labour process also means a decrease of routine work and routine workers.

Table 11. Information workers in the class structure (%)

	IW	USERS	OTHERS	TOTAL
Service class	27	3	6	11
Lower grade professionals	63	16	13	26
Routine non-manual	5	34	8	13
Skilled workers	5	24	28	21
Non-skilled workers	5	23	45	29
Total	100	100	100	100
N	177	153	372	703

There seem to be a clear division between information workers and other wage workers in the class structure. Vast majority of the information workers belong to the managerial and professional groups. More than one fourth are in the service class. And only 15% are either in routine non-manual work or in a worker position.

On the other hand more than 80 % of the ADP-users are in a lower middle-class position or in a working class position. Only one fifth

belong to professionals or to the service class. There is big difference between information workers, users and other wage workers. Clear majority of those who are neither IW or users belong to the working class (73 %).

If we then look the composition Goldthorpean class groups according to the relation to information work, we can see that 62% of the service class are IWs. The figure is the same with lower grade professionals. ADP-users makes 58 % of routine non-manual workers. Non users makes 70% of skilled workers and 82 % of non skilled workers.

Also the social profile of information workers differs from the other groups. Tentatively can be said that their profile is one of the modern petty bourgeoisie in Poulantzasian sense. They have the middle class identification and pro-capitalism attitude pattern when the other groups have working class identification and non-capitalist attitudinal orientation.

To sum up the general structural changes in the working life, which also set frames, and is influenced by new technology, to the information work we mention the following contradictory elements:

- 1) The share of managers, especially lower grade managers, has grown during the 1990s, which contradicts the expectations concerning the manifestations of thinner and lighter organisations.
- 2) The work autonomy has grown mainly in industry, in services the change has been almost negligible.
- 3) In all sectors the physical and also mental strenuousness of work has decreased, but at the same time work has generally become more intensive in terms of pace of work and work load.
- 4) In terms of social groups, managers' work in industry has become more routinised and intensive, but their decision making power has increased in some respects. In services similar improvement has not taken place. Skilled workers have benefited from the growth of work autonomy, in other respects their situation has remained same as it was in 1988. For unskilled workers past years have not brought practically any changes in any aspect of work.

These results tell about the present conditions in the Finnish working life. Old structural divisions still exist. Productivity combined with increasing strenuousness and increasing managerial con-

trol seems to be the current trend. But this is only one part of the recent developments. At the same time we can see the growth of networking and the growth of information work. Also the number of small firms has increased in all branches. These developments indicate that current situation is full with contradictory processes.

CONCLUSIONS

In this paper we have discussed the processes of social change. Our main focus has been on the coming of the information society. During the past 20 years several theoretical constructions concerning the information society has been published. Our thesis however is that from sociological point of view social changes has not been so dramatic as many theorists has predicted. There is change, e.g. new technical device, new forums etc., but there is also strong structural continuity.

Empirically we have analysed the consequences of new information technology. We asked whether new social divisions are based on the information work position developing. Further, it was asked if the polarisation or continuous hierarchy is the kind of pattern that the new social division proceeds.

In the literature the polarisation model is suggested to be applied in national and also in the world-scale development (see Castells and Aoyama 1994, Castells 1996; Freeman et al. 1995). There are also opposing results. For example Castells and Aoyama (1994, 23) argue that "the polarization of occupational structure of informational society (...) is not apparently born out of data, if by polarization we mean the simultaneous expansion of the top and bottom of the occupational scale". The same is noted by Castells also in his later works (see Castells 1996). The results obviously depend on the phenomena and data available. The occupations are not the best possible way to measure polarisation or differentiation. Skills and qualifications can be better.

In our study the main object has been work and reproduction situation; as an analytical strategy it means a combination of many variables. This is different target compared both with the skill levels and occupational structures. All this implies to a more complex analytical setting. It is also possible to compare both the levels of variables like incomes or autonomy and the structuration of the work and

reproduction situation, ie. the patterned relation of variables in different informational work positions.

The results suggest that there really is a new social division. The division line is between information workers against both ADP users and non-users. The main positive features of work and reproduction situation are those of information workers, namely work autonomy, contentually interesting and satisfying work, higher incomes and more authority. In their situation the mental intensity of work is more or less natural relative of those positive elements. It is also further confirmed by the different social portrait of IWs compared with the users and non-users of information technology.

At the level of work process, we can speak about the formation of information society. The results concerning the change of the situation are in line with the current picture, and maybe the trend of change is even the most important matter, because it can tell us something about the future. If, what is evident, the information society is only under formation, there is a fear of the continuous trend of polarisation of the work and reproduction conditions according these lines.

When the structuration of work and reproduction situation is asked the line of differentiation between IW and other wage labourer groups is confirmed. Now, however, the impact of the economic depression of the 1990s is in fore front. The experiences of economic difficulties and deprivation seem to have the same pattern in every group.

Information workers are in different class position compared with ADP-user and other workers. Information workers typically belong to the service class or in professional groups, while the other groups present routine non-manual workers and manual workers.

Both the Finnish and EU-European projects of information society are widely believed and powerfully supported by national and EU-elites as developmental strategies and in spite of beautiful promises just this can be the reason to expect the strengthening of the new division. If we add the high unemployment figures and the increasing possibility of marginalisation in the European context, it is not easy to see any direct highway to the society of equals.

To conclude our discussion we take up some theoretical and practical problems that has to be solved:

1. The international differences in the formation and stability of information society. There are huge differences between even

European countries, not to mention the gap between the most developed and “undeveloped” countries.

2. The coming of information society means new kind of relations between education and labour markets and the emergence of new kind of educational type (see Castells 1997). The real information society requires a broader educational qualification than narrow expertise. This far national strategies have mainly been based on narrow expertise.
3. The limits of information strategies. This far the information society projects has been very technological and based on short term economic calculations. E.g. the current crisis of the Asian countries is at least partly due to narrow understanding of social change.
4. The analysis of information society and changes linked with it must be analysed as a part of broader analysis of social change. Information society is one step in general social change similar “revolutions” have occurred earlier and will occur again. We have to give realistic frames to change.

The questions for the future research which follow from our analysis are (1) to specify the polarisation in relation to societal division of labour (industrial and public and private sectors, export and other industries, regions, etc.) and in relation to class and status, gender, age and other social divisions; (2) to analyse in details the nature of the knowledge and power contained to the high positions of information; and (3) to clear up what the new social cleavage means in terms of social cohesion and the social consciousness and conflicts producing the social cohesion and integration.

REFERENCES

- Bell, D. (1973): *The Coming of Post-industrial Society*. New York: Basic Books.
- Blom R. & Melin, H. (eds.) (1998): *Economic Crisis, Social Change and New Social Divisions in Finland*. Tampere: University of Tampere, Department of Sociology and Social Psychology. Series A/29.
- Blom, R. (1989): Kohti informaatioyhteiskuntaa? [Towards information society?] In Suhonen, P. (toim.): *Suomi - muutosten yhteiskunta*. Helsinki: WSOY.
- Castells M. (1996): *The Rise of the Network Society. New Theories of The Contemporary World*. Oxford: Blackwell.

- Castells, M. & Aoyama, Y. (1994): Path Towards the Informational Society: Employment structure in G-7 countries, 1920-90. *International Labour Review* 1, 1994:
- Clark, Terry Nichols & Seymour M. Lipset. (1991): Are Social Class Dying? *International Sociology* 6: 397-410.
- Crompton, R., Gallie, D. and Purcell, K. (1996): Work, Economic Restructuring and Social Regulation. In Crompton, Gallie and Purcell (eds.) *Changing Forms of Employment. Organisations, Skills and Gender*. London: Routledge.
- Erikson, R. & Goldthorpe, J.H. (1992): *The Constant Flux*. Oxford: Clarendon Press.
- Esping-Andersen, G. (1993): Post-industrial Class Structures: An Analytical Framework. In G. Esping-Andersen (ed.) *Changing Classes. Stratification and Mobility in Post-industrial Societies*. London: Sage.
- European Commission (1993): *White Paper on Growth, Competitiveness, and Employment: The challenge and ways into the 21st century*.
- European Commission (1994): *Europe's way to the Information Society: An action plan*.
- European Commission (1996): *Europe at the Forefront of the Global Information Society: Rolling Action Plan*.
- Evans, G. (1992): Testing the Validity of the Goldthorpe Class Schema. *European Sociological Review* 8: 211-232.
- Freeman C. (et al.) (1995): Diffusion and Employment Effects of Information and Communication Technology. *International Labour Review* 4-5, 1995: 587-604.
- Freeman, C. & Soete, L. (1994): *Work for All or Mass Unemployment? Computerised technical-change into the twenty-first century*. London: Pinter.
- Goldthorpe, J. & Marshall, G. (1992): A Promising Future of Class Analysis: a response to present critiques. *Sociology* 3: 381-400.
- Goldthorpe, J. (1980): *Social Mobility and Class Structure in Modern Britain*. Oxford: Clarendon Press.
- Goldthorpe, J. (1983): Women and Class Analysis: in defence of the conventional view. *Sociology* Vol 17, pp 465-488.
- Goldthorpe, John H. (1982): On the Service Class, its Formation and the Future. In Giddens and Mackenzie (eds.): *Social Class and the Division of Labour. Essays in Honour of Ilya Neustadt*. Cambridge: Cambridge University Press.
- Gouldner, A., (1979): *The Future of Intellectuals and the Rise of the New Class*. London & Basingstoke: The MacMillan Press.
- Heap, R. et al (eds.) (1995): *Information Technology and Society: A reader*. London: Sage.
- High Level Group on information society (1994): *Europe and the Global Information Society: Recommendations to the European Council*.
- Hyvinvointikatsaus 2, (1994). Helsinki.

- Kortteinen, M. (1985): Hallittu rakennemuutos [Controlled structural change]. Helsinki: Hanki & Jää.
- Kortteinen, M. (1992): Kunnian kenttä. [Fields of Honour] Helsinki: Hanki ja Jää.
- Kortteinen, M., Lehto, A-M. & Ylöstalo, P. (1985): Tietotekniikka ja suomalaisen työ [Information technology and Finnish work]. Helsinki: Tilastokeskus, Tutkimuksia no 125.
- Korvajärvi, P. (1990): Toimistotyöntekijäin yhteisöt ja muutoksen hallinta [The social communities of office workers and the management of change]. Tampere : Tampereen yliopisto Työelämän tutkimuskeskus. Sarja T ; 6.
- Kosonen, P. (1998): Pohjoismaiset mallit murroksessa [Changing Nordic welfare states models]. Tampere: Vastapaino.
- Lyon, D. (1988): The Information Economy. Issues and illusions. Cambridge: Polity Press.
- Lyon, D. (1994): The Electronic Eye: The rise of surveillance society. Cambridge: Polity Press.
- Machlup, F. (1962): The Production and Distribution of Knowledge in the United States. Princeton: Princeton University Press.
- Marshall, G. (1997): Repositioning Class. London: Sage.
- Marshall, G., Newby, H., Rose, D., Vogler, C. (1988): Social Class in Modern Britain. London: Hutchinson.
- Martin, W. (1995): Global Information Society. Aldershot: Aslib Gower.
- Masuda, Y. (1981): The Information Society as Post-Industrial Society. Bethesda: World Future Society.
- Melin, H. & Blom, R. (eds.) (1998): Class and Social Division. Evaluating Theoretical Transformations. Department of Sociology and Social Psychology, Working papers no B:38. University of Tampere.
- Naisbitt, J. (1982): Megatrends: The new directions transforming our lives. New York: Warner.
- Paakkolanvaara, E. (1988) Informaatioammatit. [Information occupations]. Helsinki: Statistics Finland. Studies No 145.
- Pakulski, J. & Waters, M. (1996): The Death of Class. Sage: London.
- Porat, M. (1977): The Information Economy: Definition and Measurement. Washington DC: US Department of Commerce.
- Poulantzas, N. (1975): Classes in Contemporary Capitalism. London: New Left Books.
- Robert, P. (1998): Occupational Class Structure: Theoretical and Methodological Problems. Review of Sociology. Hungarian Sociological Association. Special Issue
- Statistics Finland (1996): Finland in Figures. Helsinki.
- Statistics Finland (1997): Unpublished statistical tables on information society.
- The World Competiveness Year-book, IMD (1996).

- Tilastokeskus [Statistics Finland] (1997): Tiedolla tietoyhteiskuntaan [With knowledge towards the information society]. Helsinki.
- Toffler, A. (1971): Future Shock. New York: Bantam.
- Towards The Third Revolution, IDC and World Times; Dagens Industri, 7.11.1996.
- Virtanen, M. (1987): Tehtaasta studioon [From Factory to Studio]. Helsinki: Hanki & Jää.
- Webster, F. (1995): The Theories of Information Society. London: Routledge.
- Ylöstalo, P. & Kauppinen, T. (1996): Työolobarometri 1995. [Work condition barometer]. Helsinki: Työministeriö

Latecomer Strategies and Information Society Visions of Post-Socialism *ICT Policies in Eastern and Central Europe of the 1990s*

PÁL TAMÁS

INFORMATION SOCIETY: LOCAL AND UNIVERSAL DEFINITIONS

How do we define the information society? The information society is the society currently being put into place, where low-cost information and data storage and transmission technologies are in general use. This generalisation of information and data use is being accompanied by organisational, commercial, social and legal innovations that will profoundly change life both in the world of work and in society generally.

In the future there could be different models of information society, just as today we have different models of industrialised society. They are likely to differ in the degree to which they avoid social exclusion and create new opportunities for the disadvantaged. In referring to a East European IS (=Information Society), we wish to emphasise, in line with the European Union's white paper *Growth, Competitiveness, Employment*, the importance of the social dimension which characterises the European model for this reason we stress that it is essential to view the information society as a learning society. The learning process is no longer limited to the traditional period of schooling.

The social integrationist vision explicitly rejects the notion of technology as an exogenous variable to which society and individuals, whether at work or in the home, must adapt. Instead it puts the emphasis on technology as a social process

by meeting real or imagined needs changes those needs just as it is changed by them. Society, in this view, is shaped by technical change, and technical change is shaped by society. Technical innovation – sometimes impelled by scientific discovery, at other times induced by demand – stems from within the economic and social system and is not merely an adjustment to transformations brought about by causes outside that system. (Sundqvist report, OECD, p. 117)¹.

An example illustrating the importance of such social embeddedness can be found in the recent history of the formerly Socialist countries of eastern Europe. Strikingly, these countries experienced very little growth and development, despite massive investment in science and technology and higher education, in the 20 years before the collapse of the Berlin Wall and the start of the transition process. Clearly, the lack of economic integration, and more specifically the lack of a market to separate the technically from the economically feasible, pushed science and technology into isolation. But the failure of the science and technology system in market terms was only one facet of that isolation. Another, which we highlight here, was the absence of any social and organisational integration of technological change. As a result, to a far greater extent than in the so-called “capitalist” societies, science and technology came to be imposed on society in general and workers in particular, and consequently failed to produce efficiency improvements on the shop floor. Technological disenfranchisement went hand in hand with political disenfranchisement.

At the process level, rather than an externally given factor for change, the technologically driven convergence of new information and communication technologies can be best described as a process of change which is “flexible in use”, i.e. its actual implementation and economic success will be crucially dependent on the particular conditions of application and use. Ultimately, the latter will be a prerequisite for economic success and the creation of new jobs. At the product level, it is clear that the commercial feasibility of a new process or product is an essential condition for successful economic integration. But other contexts, social, ethical and socio-political, also play an important part. Here too, the literature points to a lack of con-

1. The Sundqvist report is known as one of the first OECD reports on the socioeconomic aspects of new technologies.

sideration of user needs as the single most important factor in the failure of innovative action.

If we accept the argument that developing technological capabilities does involve a complex, endogenous process of change, negotiated and mediated both within organisations and at the level of society at large, it is obvious that policies cannot and should not be limited to addressing the economic integration of technological change, but must include all aspects of its broader social integration. We thus reject the notion of technology as an external variable to which society and individuals, whether at work or in the home, must adapt.

In our interim report we emphasised the lack of social integration in the current European information society debate and criticised the technological determinism of much of the expert policy language as limiting the scope for policy action. It is an illusion to think we would be able to govern the speed of such change. Consequently, the only relevant policy issue is one of liberalising and deregulating. At the social level, while there could be “local” employment destruction, the cost of such destruction is minimal when compared to the aggregate employment “price” rigid societies might have to pay in terms of loss of competitiveness when failing to adopt the new ICTs quickly enough. (“Building the European Information Society For Us All...”, p. 2);]. The apparent lack of public support for the information society was in part a reflection of the predominance of technological considerations in the European policy debate.

GLOBALISATION EFFECTS OF ICT IN COUNTRIES OF TRANSITION

For many political leaders of the region, dealing with globalisation is not an exercise in the “politics of helplessness” so much as one in the “politics of accommodation”. Few are the governments that are hostile to markets and that have not acquiesced in the logic of global competition in a neoliberal era. The business of government is everywhere increasingly organised along the lines of the government of business. Less evident – by default, if not by design – is that this process is at the cost of the authority of governments. But citizen allegiance does not vanish. It is transferred to other sources. Primordial identities – ethnic, religious or linguistic that do not conform to understandings of

the “left/right” variety that consolidated in the heyday of the welfare state – begin to take precedence over more inclusive loyalties.

The attitude of corporate actors is well understood. States are expected to evacuate, doing so via the deregulation of markets, the liberalisation of trade and investment barriers and the privatisation of assets. It is in essence a normative economic theory for the enhancement and consolidation of globalisation. What is more interesting is the new contest to influence the structures of international governance between the old and new multilateralisms: top-down, state-driven activities of the existing international institutions, on the one hand, versus the GSMs, attempting to “reconstitute civil societies and political authorities on a global scale, building a system of global governance from the bottom up”, on the other.

Governments are learning that securing the support, or neutralisation, of opposition is now as important in the development of international policy (in areas such as trade and finance) as it is in domestic policy development and implementation. The presence of these new actors in international politics means that traditional actors must secure a balance between wider consultation and accountability, on the one hand, and an ability to resist the pressures of lobby groups, on the other.

Economists tell us that the two key elements of globalisation – the greater economic integration of the international economy and the revolution in communications and technology – are, of themselves, essentially neutral. But if globalisation is to offer more public goods than “bads”, then governance – the means by which societies deliver collective goods and minimise collective bads – is, as several recent reports tell us, as important as ever and more important than much economic theory concedes.

Are we entering a new phase in a cycle of regulation and re-regulation? In the 19th century, self-regulating markets came to be seen as socially destructive. Similarly, Jeffrey Williamson shows how the first wave of globalisation before 1914 resulted in a marked growth of inequalities within nations and suggests that this was “at least partly responsible for the inter-war retreat from globalisation which appeared in the rich industrial trading partners”. Is this happening again at the end of the twentieth century? Moreover, even if the socially destructive effects of markets are recognised, is it possible to put the genie back in the bottle? Can we reinvent the role of the nation-state as regulator and arbiter of some kind of fairness without under-

mining the strength of markets as economic growth generators? Probably not. The internationalisation of many policy issues that were once the domestic preserve of governments will invariably render this aspiration pietistic.

While the reach of interstate co-operation is often much more significant than sceptics concede, there are limits to even the most optimistic prospects for co-operation after hegemony. In this context, rational choice-driven economic analysis leaves us short of policy solutions. While policy issues are globalised, our ability to deal with them is not. The major factor in explaining interstate co-operation is still the domestic decision-making processes of the major actors. Domestic political preferences, rather than the actions of other countries (cheating and relative gains), remain paramount in explaining international co-operation.

There is a deficit in the relationship between the *de facto* processes of economic integration (the essence of economic globalisation) and the *de jure* international institutional mechanisms that would provide the necessary tools for the management of the problems arising from globalisation. An issue for the future is the manner in which the major international institutions develop. Will they, indeed should they, maintain some kind of Weberian bureaucratic neutrality? Will they remain vehicles for the pursuit of state interests, as traditionally defined in a realist understanding of international relations? Or, will they become sites at which to accommodate the multiple demands and interests of state and non-state actors throughout the widening policy communities and civil societies of states? These are important normative and analytical questions, yet they are questions which cast massive policy shadows. They are also questions that cannot be answered satisfactorily in tight disciplinary fashion. Notwithstanding the superiority of markets as agents of distribution, exchange and wealth enhancement, the political contest over the implications of globalisation is in its infancy. The importance of politics and governance in the management of these processes has never been higher, either at the level of the national state or that of an international system that creates not only winners but also large categories of losers.

Because it becomes more difficult for the state to compensate those members of its community disadvantaged by globalisation, the consensus on how society is organised within the spatial jurisdiction of nation-states is strained and the continued process of liberalisation is threatened. Moreover, to the extent that globalisation offers in-

ternational mobility to the new powerful actors (especially MNCs, multi-national corporations), it reduces the incentives for them to address these issues within national communities. They can move, thus making the management of these processes all the more difficult.

The practical question facing policy makers will be how to develop the appropriate institutions, domestic and international, to address the questions identified above. This is a more complex task than is assumed in much of the economic literature. What makes good economic sense does not always make good political sense. First best solutions – that is, economically efficient ones – may not always be politically feasible and most economists studiously ignore those sociopolitical and cultural dimensions of politics and international relations that, much more than economic ones, are likely to condition the prospects of continued liberalisation. Economic theory makes little provision for states to exercise an exit option on a particular issue that might threaten the fibre of the national identity. Too often such issues are seen as closet protectionism. Yet international institutions must secure converging policy positions by agreement and willing harmonisation, not by force. To argue as much is not a call for a free riders' charter, but a call for tolerance and an acceptance of genuine difference that is often missing within the liberalising discourse of mainstream economics. It is also a call to recognise the limits of trying to explain or prescribe policy in these issue areas using the tools of only one specialised discipline. It is, in short, a call for a balanced diet.

DEVELOPMENTAL STRATEGIES

Theorists of industrial policy are increasingly advocating what has been called the "high-road" industrial development strategy. New approaches define such a strategy as "one in which the aim is to develop an economy characterised by a high value-added profile in the output of goods and services, a high skills profile of the work force and high wages amongst citizens". The alternative 'low-road' strategy is associated with opposite features.

Countries taking the "high road" are supposed to embark on a route of continuous innovation, learning and upgrading. This idea has principally been advanced by institutional and evolutionary economists employing concepts such as "systems of innovation" and

“clustering”. The “high-road” concept also has a strong spatial connotation. The presumed relevance of agglomeration (at whatever scale) for competitive advantage has partly been inspired by new ideas in economic geography, echoed in the literature on “new industrial spaces”.

Elements of the “high-road” strategy have made inroads into the new industrial policy debate in the Central European debates of the 1990s. Policy makers in tandem stress the importance of indigenous enterprises, innovation, upgrading, co-operation, linkages and networking. Related to this, Porter’s clustering concept also has received a warm reception.

This is not to say that the “high-road” concept is universally accepted as the best strategy for development. According to critics, ideas such as “strategic cluster-building” carry the danger of undesirable and wasteful intervention. This may partly explain the limited formal policy response to Porter’s clustering concept in the neo-liberal environments of the first wave of post-socialist reformers. Many of the theoretical insights that make up the “high-road” concept are supported by empirical findings from a limited number of industrialised core economies.

At least in Hungary, but also in Poland and the Czech Republic, there is growing dissatisfaction with “foreign” models and calls are made for, at the least, adaptation of these models to the local situation. Two issues – the small size and open character of the economy, and the significant role of subsidiaries of foreign multinationals in the industrial structure – in particular are often brought to the fore. The relevant geographical scale of clusters (production networks) differs by sector and some are bound to cross national borders. As to the second issue, Porter and other industrial policy experts does not impute a strong innovative role for foreign subsidiaries. However, actual Central European research shows that the degree to which entire clusters are localised and the level of upgrading and innovative activity within those clusters varies strongly.

At the same time in the 1990s as production conditions in the Newly Industrialising Economies (NICs) altered fundamentally and new strategies were put into place by states, many multi-national corporations (MNCs) from the core economies have started to modify their global and regional strategies. Moreover, with the ongoing European Enlargement the region rapidly became an important growth area and market in its own right, and in the new situation the signifi-

cance of the region for many MNCs was no longer derived from cost advantages alone but also from its strategic importance. Many MNCs have changed towards more comprehensive and regionally focused operations. MNCs from the core economies have transferred a wider range of product lines. Additional manufacturing processes (involving “intelligent”, new information processing steps in the production chains), non-manufacturing functions, as well as other labour processes to the region. In order to maintain competitiveness in an increasingly “crowded market”, particular types of production have been geographically reallocated (transferred towards more cost-effective locations in the region). In this environment the evolution of the operations of large MNCs is marked by both a (much) more extensive plant structure-linked to a geographically (much) more dispersed pattern of operation, and the rapid growth of multi-functional non-production units. The tendency of increased localisation has given rise to procurement networks, whereby large branch plants, carrying out final assembly, have become flagships which are involved in organising such networks.

In essence, what is found in the region as to activities in production chains, functions in the value chain of firms and in the commodity chains of a range of industries has tremendously changed. This is significantly impacting the function(s) performed by “places” (dynamic “geographies”), reflecting the local and regional configurations of firms and industries, as well as the local, national and regional forces shaping these configurations.

It should also be observed that in Central and Eastern Europe a range of ‘other types’ of internationally operating non-manufacturing firms or corporations have become more prominently present.

Given the trends noted above, a number of the strategies pursued by some Central European states have proved successful. In the process of geographical reorganisation, labour-intensive routine assembly has been shifted out of Hungary or the Czech Republic to other, more suitable, locations in the region. Linked to this, firms have engaged in product-line substitution, low value-added products with a relatively low technology content being replaced by higher value-added products with a substantially higher technology content.

In the course of the 1990s firms in more technology-driven industries in the process of internationalisation have targeted Central Europe as a production base.

In discussions about the global-local (and internalisation-externalisation) dimensions in the organisational aspect of production systems employed by firms, implicitly the focus often has been on main producers in industries and large establishments, be they transplants or local firms.

Spatially, in tandem with the upgrading process more and more companies have relocated product lines out of their Central European plants to Eastern European localities. As expected, most of the relocation concerned lower end products. As relocation will continue in the years to come, it is to be expected that more establishments will internationalise. This most reflects the fact that internationalisation is an outcome also of expansion strategies which (necessarily) have assumed a regional scope. In relation to this, it was observed that the factors underlying internationalisation are two-fold. One factor is the cost push. The second factor – growing in the nearest future perhaps in its importance – is the following of clients in order to stay in the market, or maintain market share (market pull).

The global dimension remains, and the global-local configuration seems to be transformed into a global-regional-local configuration (from the perspective of the main producers). This may not necessarily have any consequences for “local content”.

Thus, in the process of restructuring, the production system and localisation appear to be reshaped. The relocation by main producers and the market pull responses of suppliers, coupled with the main prospect of contraction of local production in the supply segment (rather than stability) also because of the cost push, may imply that for the near future hollowing out of the branch as a whole is a possibility which may turn into reality.

Earlier we pointed out the regionalisation process in Central Europe, more and more stimulated by the “high-road” strategy of the governments, possibly leading to some “hollowing-out” of the manufacturing base. Manufacturing industry is taking advantage of the regional differentiation in comparative advantage within the different segments of the growth frontline, thereby creating a new division of labour within cross-national/regional networks. The presence of resource complementarity in close geographic proximity provides an excellent environment to carry out activities along different segments of the value-chain without losing the beneficial effects of geographical proximity.

POST COLONIAL INFORMATION SOCIETIES IN EASTERN EUROPE

Post-colonial societies may be divided into two types: those with a long recorded history and civilisation prior to their reduction to a colonial status and those which were perceived by Europeans as savage due primarily to the "undeveloped" state of their technology and the lack of a state organisation. "Uncivilised" societies were perceived as both original and unspoiled as well as undeveloped and savage, based on the model of the archetypical, European myth of the Garden of Eden and "original sin". The apparently rival accents of the noble savage and the unredeemed natural man derive from this same source. It may still be necessary to emphasise that the perception of this difference was lodged more in European cultural history than in the characteristics of the colonised societies that were selected as emblematic. However, its consequences were extremely significant for the subsequent development of colonialism.

A danger arises at this point that such reflection will take the form of a mere "experiential catalogue". Northrop Frye used this term to suggest that Canadian literature tended to simply list experiences as if this were adequate to constitute a cultural tradition. He suggested, by contrast, that it is only when experiential contents are formed into a universal mythic pattern that a contribution of more than local interest is attained. The problem, of course, is that such supposedly universal myths, are by no means self-evidently universal. It may be not only experiential content that is new, but the form of structuring itself. To this extent, Frye is right: unless the new, cultural experience transcends a catalogue and becomes a structuring form, we have simply the extension and deeper imperialism of European culture – new grist for the old mill. From this demand for an interplay between the experiences rooted in social history and the forms of thought, issues the possibility of post-colonial culture by ex-Europeans. Without this kind of reflexivity, we fall back to West European models at a later date. Our experiences are neither simply contingent, nor immediately universal, but concern the possibility of a universalising articulation from a particular location.

Eastern Europe the communication theory has no such immediate reference. Nevertheless, it is a theory of communication worked out from the periphery, which argues that it is the undervalued, or

unrecognised media that sustain the balance required by a viable civilisation. Media theory is thus a critique of institutions. Moreover, the biases of institutions tend to be invisible to social scientific analysis, since the social science disciplines are built upon and generally justify the prior institutional arrangements through incorporating their presuppositions into the basic theoretical propositions. For this reason, media theory is also a critique of the disciplinary organisation of thought. The centre systematically misrecognises the conditions of its own existence. It fails to understand that it does not sustain itself of itself but only through its relations to the periphery, on which (in a reversal) it is “dependent”. In the light of these themes, which bear considerable resemblance to contemporary post-structuralist and deconstructionist ones, it is important to notice that Innis’ defence of time and oral tradition is not merely a re-establishment of key assumptions of European thought – today usually called phono and logo-centrism. The paradox is this: even when a conventional, West European, “metaphysical” assumption is rediscovered in a colonial context, the context of (re)discovery confers a different meaning – neither as an assumption, nor as autonomous, since its constitution through the periphery has undermined its self-evidence and independence. In this manner, the Eurocentrism of European culture becomes (at least potentially) simply European and clears a space for a discourse beyond “the West”.

ICT MYTHS AND TRENDS OF DEVELOPMENT

In the social iconography of our times, no symbol is more potent than the computer. Information technologies in general, and computing in particular, are widely understood as key engines of social change, driving the inexorable transition from the world as it was to the one that is emerging. Two beliefs seem to underlie this view. *First*, a conviction that computerised ways of doing things are vastly more efficient – quicker, more powerful and authoritative, more cost-effective – than their conventional counterparts. *Second*, and much more vaguely, a sense that computerisation is apt to bring about far-reaching (but unintended and vaguely understood) transformations of social relations.

As bases for such beliefs, most people would probably point to some widely-noted trends – that computing activities have long con-

tinued to grow cheaper; that they increasingly engage nonspecialists; and that more and more areas of social life involve computing. Such understandings go along with a readily believable theory: computing is spreading because of compelling economic incentives; its efficiencies draw decision-makers to a never-ending search for new ways to harness its potential for ordering the treatment of both things and social processes.

Thus research to date presents us with ambiguous results in terms of efficiency models of the extension of computing. But there are theoretical alternatives to these models. Kling takes a highly skeptical attitude toward the quest for efficiency as the key impetus to computerisation. Instead, Kling and Iacono view the diffusion of computing as the result of what they call a "social movement". In their words,

"During the last 20 years, CMs [computerisation movements] have helped set the stage on which the computer industry expanded. As this industry expands, some computer vendors and their trade associations can be powerful participants in specific decisions about equipment purchased by a particular company". But vendor actions alone cannot account for the widespread mobilisations of computing in Eastern Europe of the 1990s. They feed and participate in it; they have not driven it. Part of the drive is economic, and part is ideological. "Collective behaviour" may be a more exact term for what Kling and Iacono have in mind here than "social movement". The force that they identify as driving extension of computing is a diffuse, socially-propagated and self-sustaining enthusiasm - embodying unshakable assumptions of the beneficial tendencies of the technology, and resisting any critical confrontation with evidence.

Among contemporary students of organisations, these skeptical approaches have their parallel in what has come to be called "the New Institutionalism" (Powell and DiMaggio 1991). Proponents of this rather diffuse set of doctrines cast their position as an alternative to strictly economic models of organisational change. Many important innovations in organisations, they insist, cannot reasonably be accounted for by anything so simple as cost-benefit calculation. For one thing, costs and benefits are simply not sufficiently clear-cut; the nature of choices to be made, and the identities of those who choose, are open questions. To simplify a bit, one might say that, for the New Institutionalists, the key question is what kinds of costs are considered, and who pays them.

In this view, organisations are self-justifying and mutually mimetic. Efficiency and cost-effectiveness may indeed represent the coinage of public justification for many organisations; accordingly, no one should be surprised to find that innovations are presented in such terms. But often there is nothing remotely like clear-cut evidence available to reflect on the cost-effectiveness of any particular innovation. The best substitute for such evidence, for public consumption, may be to demonstrate that one's own organisation displays the same publicly-visible features as other organisations of the same kind. Whether these institutional features are precisely more cost-effective than various institutional alternatives is perhaps an unanswerable question. But it is clear that their presence helps keep up an indispensable appearance that the university in question is acting like other universities to which it would like to be compared. The example is easily extended to other organisations and other forms of innovation.

Whatever the deep forces underlying the press to computerise, these are not apt to be consciously known or directly professed by the actors involved. Instead, these forces arise from diffuse, culturally-entrenched and unexamined convictions that computing offers solutions to virtually any it is, and when and how it arrives – apply as equally to the 21st century as they do to globalisation, as if the two go together quite naturally in some millennial dynamic. There is a sense of inevitability on the one hand, and on the other, considerable trepidation.

The economic dimensions of globalisation are featured in chapters by Saskia Sassen and Gary Gereffi. Sassen juxtaposes the global economy of “flows” (of capital and services), advanced by information technologies, with the new geography of centrality of regulatory nodes, stemming from the centralisation of command and the provision of services in global cities. The significance of her juxtaposition is that states remain important vehicles of the global economy, in the sense that, being spatial and legal organisations, states accommodate and contribute to the elaboration of new transnational regimes regulating these flows (rather than withering away). Gereffi reviews the shifting ground of development strategies, under conditions of transnationalisation of production. Referring to various case studies, his focus is on the global scale of the ladder of industrial development, represented spatially by commodity chains. Development, here, involves climbing the ladder by technological upgrading and

adapting the institutional practices of successful upwardly mobile states, such as the Newly Industrialized Countries (NICs).

NATIONAL INNOVATION SYSTEMS AND THE EMERGING NEW INFORMATION ORDER

Many studies in the economics of innovation have pointed out that technology is best understood from a system perspective. Even apparently simple products embody very different types of knowledge which are not always available to a single organisation and are not always embodied in goods that can be purchased on the market. Many firms access valuable knowledge both through market exchange (e.g. through the purchase of capital or intermediate goods or licensing agreements), and through less formal contacts with suppliers, customers, universities, government agencies and other organisations. It is a well-known fact that firms with little innovative activity may enjoy a satisfactory economic performance because of the capabilities they acquire from upstream suppliers. The same applies at the sectoral level: some fast-growing industries, for example in the service sector, do not themselves produce technological innovations to any significant degree. The economic environment in which firms operate is therefore crucial for the development of their technological capabilities. This fact is increasingly acknowledged, and the terms "national systems of innovation" (Lundvall, 1992; Nelson, 1992; Archibugi, Howells and Michie, 1999) and "technology systems" (Carlsson and Jacobsson, 1996; Simonetti, 1998) have been introduced in order to analyse the complex webs of interactions between institutions and industries in the innovation process.

Interdependence, thus, plays a key role in the generation and use of technology. However, its conceptualisation and measurement are still at a rudimentary stage, due no doubt to the rather elusive nature of technology. Indeed, the literature on the economics of innovation has highlighted a number of issues that relate to the nature of technology and are connected to the nature of interdependence.

In current society the cost and power of information technology means larger institutions such as major corporations and government have much greater information access and processing capability than individuals. In current society individuals make most deci-

sions based on intuition with little access to databases. Operational information policy would greatly reduce the asymmetry between individuals and institutions. With the expanding social nervous system database entrepreneurs would create numerous databases for individual decision making. These database entrepreneurs would have the resources to obtain negative information such that their clients would make more informed decisions. With much more powerful home computers and distributive processing through the social nervous system, individuals would be able to analyse their alternatives systematically.

The public acceptance of a more open informational policy depends on a majority of citizens gaining from the change. Given a system of social inheritance, the motivation of all citizens is modified. As he inherits his share of the capital stock, everyone simultaneously plays the role of consumer, producer and public. As a consumer, the individual would like to acquire goods at the competitive market prices. As a producer, however, he would want the highest rate of return, and as a citizen he would like an effective government. Not only are these goals in conflict, but their resolution will change as new knowledge is acquired about the environment, more efficient production technologies, and consumer needs.

The right to learn provides the framework for creating operational information policy governing decisions based on current knowledge. Operational information policy should promote market efficiency, government effectiveness and the ability of principals to evaluate agents.

Our methodological questions were to map interaction patterns brought about by the predominant channels through which a society's information travels. Does information in a culture move from the periphery to the centre or vice versa? Does the culture value information as a scarce commodity by storing it up or is it treated as an abundant commodity? Does information move towards increasingly larger spheres of influence pushing cultural borders outwards? Or the reverse?

Innis concluded that two general orientations were present in a culture at any time: 1) An orientation stressing short distant patterns of communication which is largely dependent on interpersonal interaction and local communication; and 2) an orientation stressing long distance patterns of communication which is largely dependent on communication technologies.

A bias towards long distance orientations leads to the undermining of many localised features of cultural and social life. Replacing local sources of information with distant ones leads to a change in what and how people think. Short distance contact emphasises local interests and can lead to a withdrawal from contact with others further afield. This may set new frameworks for bias.

A society's biases with regards to a particular technology may affect both itself and other (especially geographically adjacent) societies. In this manner, bias establishes the power to define reality – a conceptual and practical position with consequences at various levels of social interaction.

THE TRAJECTORY OF TECHNOLOGY

Technological change is marked by broad uncertainty within defined constraints. The constraints are set by the 'natural' limits of the operative scientific paradigm and of the production capabilities available to exploit it. The uncertainty stems from cost/performance/functionality trade-offs, customer preferences given alternatives, and changing general business conditions which broadly affect the capacity to produce and consume innovations.

In that sense, technology development is a path dependent process of learning in which tomorrow's opportunities grow out of product, process, and applications activities undertaken today. Rather, technical progress involves additional, often subtler insights that coalesce only in conjunction with experience in development, production and use. The process is simultaneously cyclical, incremental, and highly interactive – rather than a dramatic breakthrough, a leap up to the next rung in the ladder of technological progress, advances are driven through iteration and cumulative learning-by-doing in production, learning-by-using in consumption. This iterative, cumulative activity helps to produce ordered development paths within the broad patterns of constraint and uncertainty that mark all industrial innovation.

Differently positioned actors can make different choices and establish different lines of progress. They can evaluate the attendant risks and uncertainties differently, apply different capabilities to their technological effort, receive different signals from customers (and financial markets) in response, and go down different development

paths. They can, in other words, mount differing technological trajectories – that is, differing progressions along the economic and technological trade-offs available within the broad fabric of constraint and uncertainty.

These ideas about technological progress can be extended, with care, to the modern industrial economies which rely upon the generation and adoption of industrial innovation for growth. Their development is characterised by the ability to effectively exploit technology within given patterns of constraint and uncertainty. And again, the capacity to exploit technology varies with context – in this case, the community and market context of the economy within which technology evolves.

As the example implies, domestic capacity to exploit a technology lies in the particular capabilities for production and use of the technology resident in an economy. Broadly speaking, an economy's particular mix of capabilities embodies that economy's potential for the learning-by-doing and by-using that underlie technical progress. In turn, the exercise of the available capabilities determines how much of the potential for technical progress is actualised. Since capability differs from economy to economy so does the potential for learning and technical progress, and so ultimately does the actual realisation of technology development paths.

In short, different national mixes of production capabilities – i.e., different national capability-sets – carry with them the potential for very different national technology trajectories. Although technologies and the capabilities they embody diffuse across national borders in a relatively open world economy, divergent national trajectories can persist under two conditions: if cumulative learning and progress down a particular development path can accrue and be retained locally for extended periods, or if local capabilities to absorb technology from abroad differ significantly.

The speed and degree to which technical know-how flows across national boundaries thus depends crucially upon the character of local capabilities. In other words, successful diffusion of technologies from one economy to another is not automatic even in an open world economy. National technology trajectories can either converge or diverge depending upon whether or not the relevant national capabilities underlying them are effectively accessible. In this context, "effective access" exists when technological capabilities are available in the required amount and quality, in a timely fashion, and at a com-

petitive cost. Conversely, the capabilities are not effectively accessible when unavailable at the appropriate quantity, quality, timing, or price.

The supply base is the resident domestic capability to supply the component, machinery, materials and control technologies, and the associated know-how, that producers use to develop and manufacture products.

The supply base shapes the possibilities confronting producers in two ways. *First*, different architectures of supply can either enable or deter access to appropriate technologies in a timely fashion at a reasonable price. *Second*, different architectures of supply imply different opportunities to engage in the interaction and support (between suppliers and producers) that are necessary to effectively exploit the technologies that are accessible. These points are worth a closer look.

Now consider a starkly contrasting supply architecture, one in which domestic producers are similarly dependent on international markets for supply of technology, but those markets are relatively closed to trade and investment. They are simultaneously oligopolistic and geographically concentrated. Opportunities for support and learning by interaction are available only to customers with a significant local presence in the supplier's heart-land, and on terms largely dictated by the supplier. This kind of supply architecture would significantly constrain producers abroad who were dependent on it, and would have great potential to eliminate opportunities for the dependent foreign economy to capture spillovers and other externalities. From the perspective of the distant economy, most of the relevant production activities lie abroad, as do all of the leading edge activities that generate most of the spillovers. The pace of domestic technical progress – the ability effectively to exploit the machinery, materials and component technologies which underlie all electronics – is effectively controlled from outside the domestic economy. Opportunities to capture externalities are reduced.

Thus, a given supply architecture can either reinforce domestic capabilities to exploit technology or undermine them (when the relevant domestic activities move abroad). By altering the locational logic of industrial investment, the architecture of supply is, in effect, dynamically allocating national (or regional) opportunities to exploit technology over time. A given supply architecture could permit tech-

nology to diffuse internationally at any moment in time, but still bias new investment over time to the locations where it is spatially concentrated. A given supply architecture also represents a spatial distribution of opportunities for long-term economic performance associated with the effective exploitation of technology.

Domestic development trajectories depend upon domestic capabilities to exploit particular technologies, the cumulative industrial trek down unique development paths for those technologies, and the degree to which related relevant technologies diffuse through the architecture of supply and become available for domestic use.

Genealogy matters in delimiting these variables: the emerging trajectory rests partly on the past development trajectory from which it is evolving. Indeed, the capacity to continue to exploit technology rests on available production capabilities and accumulated know-how from past development paths.

In the post-war period, the state socialist Eastern Europe chose to emphasise investment in production over consumption, creating macroeconomic conditions for rapid growth. Policy generated stimulate new investment through a variety of state incentive schemes and reserved the growth in domestic demand for producers by closing the domestic market to foreign firms. Dynamic scale economies dominated, making the pursuit of market share a necessity to sustain short term profits.

INFORMATION INFRASTRUCTURE

The growing interest for information infrastructure has produced a rich variety of studies and analyses of information infrastructures. Surprisingly enough, there do not exist many studies about the Internet that try to spell out in some detail how the design process actually takes place. There exist several overviews of the historical development of the Internet, but they contain little or no evidence of how or why various design decisions came about. Star et al. seek through a series of studies to develop a deeper understanding of what an infrastructure technology, as opposed to an artifact, is. Star and Ruhlender (1996) discuss the adoption and use of an information infrastructure supporting a community of researchers. Neumann and Star (1996) discuss the multiplicity of viewpoints of an information infrastructure. Bowker and Star (1994) describe how standardised

classification schemes in medicine highlight some aspects of the phenomenon while downplaying others. Similarly, Kling (1991) develop a notion of infrastructure that is to capture the many hidden resources that need to be mobilised to get an information system to actually be used.

Lehr (1992) points to the bureaucratic and procedural differences in the ways standardisation bodies organise their work. These are argued to play an important role for the outcome, namely, the standards. For instance, the OSI effort represents a clear-cut alternative to the evolutionary approach underlying an emphasis on transition strategies. OSI is designed monolithically from scratch, that is, with a total disregard for existing information infrastructures, the installed base. It has been fiercely criticised exactly for this (Hanseth et al., 1996; Rose, 1992c).

The literature on large technical systems is illuminating in describing how infrastructures are established but tends to bypass how to facilitate changes (Summerton, 1994). A particularly relevant contribution is Hughes (1983), which gives a historical account of the electrification of the Western world around the turn of the century. Hughes's work is important but it does not address the dilemmas of scaling explicitly. It would be illuminating to reinterpret his account by focusing on the issues of transition strategies, the role of the installed base, and gateway technologies.

Recently, there has been attention to development strategies suitable for information infrastructures (Kahin & Abbate, 1995). These strategies do not deal with scaling but address issues such as the role of government intervention and industrial consortia.

Grindley (1995) argues for the importance of the installed base of products. This emphasises the need for products to be backward compatible; that is, that they interact with earlier versions of the product. In other words, this protects the installed base of earlier versions of the product. Backward compatibility plays the same role for products as transition strategies for information infrastructures (Hinden, 1996).

A possible strategy to support a scaling information infrastructure different from enhancing a smooth transition is the use of gateways. This is a potentially useful mechanism for scaling information infrastructure that plays practically no role in the Internet. It is pretty much written off within the Internet community (Eidnes, 1996;

Stefferdud & Pliskin, 1994). Using gateways is interesting but is not pursued in this article. Consult, for instance, David and Dunn (1988) for a discussion of gateway technologies from an economic perspective. Hughes (1983) describes several employments of gateways in the history of electrification, and within the digital library initiative there is some attention to the role of gateways.

As society is propelled from industrial to information age by the dual forces of converging digital technologies and globalisation, governments are finding it difficult to keep pace with change and to define the appropriate policy response.

Old rules and frameworks are rapidly becoming obsolete as new technologies transform the industrial landscape.

As a result, it is no longer possible to keep the network industries separate from the broadcasters and publishers, which means that current regulatory frameworks governing telecommunications and broadcasting, and publishing must be transformed in order to allow new businesses to take off.

The Information Society has become a visible policy element in all Eastern and Central European states at different levels, including city and regional ones.

But for the Internet and its successor global network of networks to transform itself from being a global information and communication space into a genuine economic, social and cultural space, a number of problems associated with its use must be overcome.

Such measures would have to respond to essentially three requirements:

- If the future environment for global communications is to be an open network such as the Internet, and this is to develop into a virtual space for business and electronic commerce, then users (businesses and consumers) need to be convinced that confidential commercial information, as well as payment systems, are safe and secure. In some cases, they also need to be certain of the identity of their correspondent or the originator of any transaction.
- If the Internet is to also become a virtual legal space, used for the exchange of contracts, legal formalities, and for public administration, users need to be confident that the integrity

of electronic documents and data can be guaranteed, that they can be used as legal evidence, and are sufficiently protected from being tampered with or maliciously transformed. Measures will need to provide legal security and trust in the medium.

- If the Internet is to develop into a virtual space for learning, parents need to be reassured that they can exert parental control over the content to which their children can have access. Tools should be placed at their disposal should they wish to protect their children from what they may consider as inappropriate content, such as pornography, racism, paedophilia networks and violence. Furthermore, the content of some forms of network communication could be in conflict with national laws, habits, and cultures.

THE ROLE OF ICT IN GROWTH OF PERFORMANCE

Turning now to the role that ICT plays in the economy, directly as a producer of final consumption and investment goods, and indirectly via the utilisation of these investment goods in the production process, it should be observed that the contribution of the information and communication technology to output and productivity growth can take three main forms: 1) acceleration of productivity growth in the ICT-producing sectors themselves and an increase of their weight in the economy; 2) capital deepening driven by rapid investment in ICT equipment; and 3) ICT-using sectors enhancing their efficiency by harnessing new technology.

In the United States, over the 1990–97 period, the ICT industry enjoyed an annual average labour productivity growth above 10 per cent (compared with a 2.3 per cent annual average in the manufacturing sector) and accounted for about 40 per cent of total manufacturing labour productivity growth. International comparisons of the contribution of ICT industry to manufacturing productivity growth is limited by the fact that some countries, including the United States, use hedonic price deflators for computers and others do not. This is likely to have a significant impact on measured productivity in the industry. However, available data suggest that, although generally higher

than the manufacturing average, labour productivity growth rates of ICT industry have been smaller in most of the other OECD countries (for which data are available) as compared with the United States.

In the Central European countries, the share of IT capital goods in total investment expenditure rose steadily over the 1990s, and accounted for 5 per cent of total non-residential gross fixed capital formation in the Central European countries in 1996. The share of communication equipment also rose, though less rapidly, and accounted for around 5 per cent of total non-residential investment. This fast growth is due to an annual decline in IT price indices of about 10 per cent, reflecting rapid quality improvements and technical progress embodied in these capital goods.

The rapid investment in information and communication technology assets led to a positive compositional effect, in all Central European countries, and over both time periods shown, i.e. capital services have grown at a more rapid pace than the capital stock. ICT assets are relatively short lived and, on the assumptions adopted, their marginal productivity in each of the few periods of their service life has to be high enough to finance depreciation and capital losses. Available evidence suggests that the capital composition effect in the United States is likely to have increased significantly in the past few years due to a marked boost in ICT investment. The growth rate in both hardware and communication equipment almost doubled in the 1996-99 period compared with the first half of the 1990s.

The second point is that the positive quality/composition effect implies a stronger contribution of capital to output growth (at the same time, measured multi-factor productivity growth would decline by the same amount, see below). In other words, the measurement of capital services shifts some of the growth effects from multi-factor productivity growth to capital.

CYBERPOLITICS: THE NEW EASTERN FRONTIER

The new information technologies, in giving rise to the explosive growth of the Internet, opening the cyber domain, and fostering a worldwide infosphere, have really created a vast new territory. In doing so, they have reopened "the frontier." And Central Europe, with its historical behavioural models in the "in-between-zones" and

its utopian future vision inherited perhaps from socialist ideologies, understands how to profitably settle and exploit a frontier. Thus, there is a strong cultural component to some new democracies seizing the possibilities offered by the cyberfrontier. Understanding why this frontier analogy has now regained its relevance helps us recognise many of the deep transformational changes that are occurring in the region. Frederick Jackson Turner, one of the most distinguished American historians of the nineteenth century, outlined his then-startling "frontier hypothesis" asserting that a frontier had existed continuously for nearly three hundred years. More than a boundary or a physical space, the frontier was an idea, and an ideal, of boundless opportunity and an expression of individual freedom. The West, in particular, also became – and remains – a potent symbol of American distinctiveness. In a way let us ponder whether these new information technologies have re-established a space – and a vision – of almost limitless opportunity for those who are prepared to exploit it and provided as well a fresh source of comparative advantage in technology. If so, then perhaps what we should be talking about is not "cyberspace", but the "cyberfrontier" – a powerfully resonant metaphor for this new territory.

In relating the American West and the cyberfrontier, these deeper emotional linkages flow from the social, political, and economic manifestations that were generated by the frontier phenomena – and both need to be appreciated for their implications for the nation at the Gestalt level.

As did our earlier western frontier, the cyberspace this new territory will attract many contending parties, and they will bring conflicting interests and perspectives on how to define and shape the character of this new cyber territory. Rather than attempting to address all possible implications, this chapter focuses on a more limited set of issues that the frontier analogy can offer – a different perspective from one grounded in the modern post-industrial era:

- a) How the cyberfrontier will cause fundamental restructuring of economies and societies that exploit it?
- b) How should we resolve the conflicting equities and guarantee the maximum opportunity for exploiting this new domain?
- c) What should be the appropriate role for government: to direct exploration or provide encouragement for it?

Turner argued that the availability of the western frontier had affected both developments at home and America's attitudes towards the world at large: "The most significant thing about the American frontier is, that it lies at the hither edge of free land". The existence of the frontier significantly lessened pressures for either intensive development at home or for overseas colonial expansion and other foreign adventures.

In this sense too, our present situation on the cyberfrontier resembles that western frontier experience: it is less about reallocating existing customers and sharing existing markets than about creating entirely new products, services, and industries – and opportunities as well. The "West" was a place to get away from failure and from too much control, by social conventions or by government, and it is crucial to recognise the sense of freedom that the frontier represented, not only to Americans but to those drawn from afar to settle the America frontier. Great struggles would be fought over governments' ability to extend control, in fact as opposed to in law, and these arguments also mirror many present-day issues of contention over legal regimes and regulation of this new space.

This recognition of the deeper historical roots will have important consequences for the choices we make about American society. The frontier metaphor provides a powerful framework to relate the developing features of an information-dominated society to the historical antecedents; our frontier forefathers had also "... dreamed dreams and beheld visions".

Not only was there a series of expansions pushing the geographic frontier continuously westward, but each new expansion started the cycle of social development anew. With each stage of westward expansion, there was a "... a return to primitive conditions" in which life-threatening dangers were commonplace. Turner saw a progression of these stages of frontier exploitation: first by hunters and fur traders, then cattlemen and ranchers, miners, and then farmers, and finally manufacturing and industry – "a recurrence of the process of evolution". As a result, there was also a progression in stages of settlement and density, each with their attendant development of appropriate behaviours, rules and institutions. As Turner noted, "... one can study the germs of processes repeated at each successive frontier ... And the settlement of these and similar questions for one frontier served as a guide for the next".

The frontier provided a "... safety valve for all the discontented who were trapped by past customs or by present economic hardships". Timothy Dwight, historian and President of Yale, in 1821 had characterised the pioneers as social misfits - "too idle, too talkative, too passionate, too prodigal, and too shiftless to acquire either property or character". The chance to walk away from failure and have opportunity for a fresh start often acted as a spur for tackling the hardships of the frontier. The frontier was the land of the "second chance" (and often third and fourth); it was populated by people often without history, intent on abandoning their pasts. Many of those who went forth on the frontier often wished to leave government, family, status, neighbours, church, and other entangling relationships behind. It was the place and chance to recreate identity. The frontier offered the rare opportunity to be defined by deeds, not by one's ancestors or even one's own past. It was far more egalitarian - almost all shared the hardships of frontier life - and less socially stratified than the more settled east; either sudden fortune or disaster could change one's place.

Today, the successive waves of new information technology generations mirror the episodic stages of our earlier westward expansion; the "high-tech start-ups" that populate each of them represent our new frontier settlements. "Whatever.com," or any Web address, is the modern equivalent of the miner's claim or the homesteader's land patent. One perceptive governor recently commented, "Our goal is to create new pioneers. The pioneers of the last century followed the railroads. The new ones follow the Internet".

What is striking is how comments made about the earlier American frontier and those who settled it ring about the new cyberfrontier. These similarities may illuminate the reappearance of "cowboy" values and fondness for Remington sculptures among the cyber-entrepreneur set.

We ought not be surprised that this new frontier, like the west, is again giving rise to a new "net culture" - that is, a distinctive set of behaviours: from dress, to language, to attitudes, to patterns of action, to political perspectives, and especially to values. As Turner noted, "The 'West,' as a self-conscious section, began to evolve" and it produced a culture based on frontier necessities and experience. And these behaviours and the attraction of the new culture are likely to be as important as any products produced in this new territory; espe-

cially important will be the values it fosters. The new cyber- or net-culture, often exhibited in archetypal fashion in Silicon Valley, strongly suggests a reversion to our earlier frontier experience, rather than continuing a pattern of evolution from the frontier through industrial to an ever more sophisticated (and protected) post-industrial world.

The frontier experience shaped a view of government's role that was more focused on facilitation than on enforcement; and it should not be surprising if the frontier values, emphasizing individualism and self-determination, lean in that direction. Of particular importance, therefore, may be the lessons that can be drawn from our frontier experience concerning the process of developing an appropriate government role and codifying a suitable legal regime.

While "hardy pioneers" may have populated the frontier, government's contribution to creating the necessary infrastructure had been crucial. Government financed exploration of the new territories. Cyberspace similarly rests on an enormous and complex infrastructure put in place by a combination of government and private actions – from new information technologies that provide the physical underpinnings to policy, legal, tax, intellectual, and regulatory frameworks that enable contesting claimants to adjudicate conflicting equities. And in both cases, government contributed substantially to making settlement of the frontier possible and to encouraging Americans to venture forth.

The cyberfrontier shares this characteristic of choice with the west. Therefore, it should not be surprising to find these same processes of concentration and amplification at work in the self-selected population that has first embarked out on this new cyberfrontier – the "early adopters," as they are known. This self-selection process is one important aspect of what makes a frontier special. But active participation in a frontier experience is a matter of choice; the frontier draws those who have made a conscious decision to explore new territory, whether physical, conceptual, or virtual.

When the changes are extreme or widespread, entirely new cultures can develop that go beyond merely incremental changes to old forms. One only has to think about the dramatic changes in business practices and social etiquette caused by the widespread proliferation of the telephone to perceive the creation of a new culture and the need for appropriate new institutional arrangements. In similar fashion, the fast-paced adoption of e-mail by both businesses and consumers

over the past decade is now triggering a rapid evolution of new cultural norms that are appropriate to this new medium.

During this first stage, settlers were often isolated from each other and individual self-defense (by families) was the norm since no organized, or outside, means of assistance or protection existed.

In the second stage, clusters of population were created with the arrival of more settler families. Along with denser settlements, a sense of community developed. As trust increased through the development of personal relationships, a collective responsibility for reciprocal assistance and protection was accepted by most members of the settlement. Furthermore, it is worth stressing that we began our national existence with a militia-based military force and depended, until only very recently, on citizen-soldiers, not professionals, to fight our wars.

Finally, in the later stage of these frontier settlements, the community often recognised the need for the professionalisation of many key functions. It then formally delegated its inherent law enforcement powers with a grant of authority to a sheriff appointed by the community. Functions delegated often became the sole duty of the hired professional, and individual citizens then avoided participating in these activities, even when they had previously performed them as a community responsibility.

As discussed previously, our western frontier analogy suggests a broad spectrum of governance forms and institutional structures that could be adopted as paradigms for the new cyberfrontier. Each carries significant implications for patterns of further development and governance. How appropriate each may be is to some degree conditioned on one's assessment of where the new frontier stands on that evolutionary development path. These forms range from: 1) leaving protective measures in individual hands as a matter of retaining personal responsibility (individual self-defense); to 2) accepting the responsibility for protecting the community's interests and retaining the authority in the community's hands (collective self-defense); to 3) shifting the authority for community regulation to the government (formally delegated authority). While many outside the cyber-community argue for more government intervention and control over this new frontier, most members of this new frontier community would prefer only limited and very judicious intrusion by government, especially as most believe that few outside this frontier understand its distinctive characteristics - in particular its rapid rate of change. Thus,

whether we accept as most appropriate choice for our form of governance the post-industrial or frontier analogy is an important decision.

As a result of self-selection, our new cyberfrontier has concentrated certain historically American traits as it evolves its distinctive culture. Thereby, it has magnified the inherent differences in attitude between itself and the rest of the country. At the same time, the diffusion of those traits throughout American society has been more rapid and accepting than elsewhere in the world. We should expect that there will be significant disagreements and even open confrontation with other nations in making the transition to Information Age societies. These types of transformational changes take time.

Working out our arrangements for the Information Age will likely take a substantial period of time for both internalisation of appropriate new behaviours and codification of rules and procedures; adaptation to revolution is, by necessity, a long-term process. How we choose to realign and balance these three critical powers will tell us much about our views of the social contract.

REFERENCES

- Albach, Horst (1993): *Zerrissene Netze. Eine Netzwerkanalyse des ost-deutschen Transformationsprozesses*, Berlin, DIW.
- Ayres, Ron & Clark, David (1998): *Capitalism, Industrialisation and Development in Latin America - The Dependency Paradigm Revisited*. *Capital&Class*, No.64. Spring.
- Bitzer, J. (1998): *Software. Final Report - Industriqal Restructuring. TSER Project Restructuring and Reintegration of S&T systems in Economics of Transition*. Berlin, German Institute of Economic Research, September.
- Bitzer, J (1997): *The Computer Industry in East and West -do Eastern European countries need a Specific S&T Policy?* Berlin, DIW Discussion Paper No.148. German Institute for Economic Research.
- Bohlin, Erik - Aizu, Izumi - Chowdary, T.H.- Xiadong, Li & Oniki, Hajimi (1999): *Sustainable Information Policies in Asia - Standing firm despite financial turmoil*. Sevilla. IPTS Report No.32. ISS5E326.html
- Borras, Michael-Zysman, John (1997): *Wintelism and the Changing Terms of Global Competition - Prototype of the Future?* Berkeley, BRIE working Paper 96B.
- Bouin, O. - Coricelli, F. & Lemoine, F. (eds.) (1998): *Different Paths to a market economy*. Paris, OECD.
- Boyer, R. & Saillard, Y. (eds.) (1995) : *Théorie de la Régulation. L'Etat des savoirs*. Paris.

- Bresnahan, Thomas & Malebra, Franco (1998): Industrial Dynamics and the Evolution of Firms' and Nations' Competitive Capabilities in the World Computer Industry. In: Mowery D.-Nelson R. (eds.) *The Sources of Industrial Leadership*. Cambridge, Cambridge University Press. 101-147
- Dörr, Gerlinde & Kessel, Tanja (1996): Transformation als Lernprozess. Berlin, WZB, working papers FS II 96-602.
- Ellingstad, M. (1997): The Maquiladora Syndrome – Central European Prospects. *Europe-Asia Studies* Vol.49.no.1.
- Ernst, Dietrich (1997): From Partial to Systemic Globalization – International Production Networks in the Electronic Industry. Berkeley, BRIE Working Paper 98.
- Evans, Peter (eds.) (1995): *Bringing the State back In*. Cambridge, Cambridge University Press.
- Flamm, K. (1998): *Creating the Computer*, Washington, The Brookings Institution.
- Frotsching, Alois – Ottisch, Mathias & Tochtermann, Klaus(1999): A Strategic Alliance for a Sustainable Information Society. Sevilla, IPTS Report No.32. ISSE2E326.html
- Granstrand, O.- Hakanson, L. & Sjölander, S. (1997): Internationalization of R+D -a survey of some recent research. *Research Policy*. Vol.22. 1993.3. 413-440.
- Hack, Lothar (1997): *Technologietrasfer und Wissenstransformation. Zur Globalisierung der Forschungsorganisation von Siemens*. Münster, Westfälisches Dampfboot.
- Haggard, S. (1990): *Pathways from the Periphery–The Politics of Growth in the Newly-Industrializing Countries*. Ithaca, NY, Cornell University Press.
- Haslam, Paul (1999): Globalization and Effective Sovereignty – a Theoretical Approach to the State in International Political Economy. *Studies in Political Economy*. No.58. Spring, 41-68.
- Heidenreich, Martin (ed.) (1992): *Krisen, Kader, Kombinate, Kontinuität und Wandel in den ostdeutschen Betrieben*, Berlin.
- Henderson, R.- Clark K.B. (1990): Architectural Innovation – The Reconfiguring of Existing Product Technologies and the Failure of Established Firms. *Administrative Science Quarterly* Vol.35. no.1. 9-30.pp.
- Iversen ,Torben – Cusack, Thomas: *The Causes of Welfare State Expansion – Deindustrialization or Globalization?* Berlin, WZB working papers FS I 98-304
- Janos, Andrew C. (1997): Paradigm Revisited -Production, Globality, and Postmodernity in Comparative Politics. *World Politics* vol. 50. October 118-149
- Jaran, Josef (1997): *Global Information Society in Central and Eastern Europe*. New Orleans, American Library Association.

- Jessop, Bob (1990): *State Theory – putting Capitalist States in their Place*. University Park, The Pennsylvania State University Press.
- Katzenstein, Peter J. (ed.) (1997): *Mitteleuropa – Between Europe and Germany*. Providence, Bergahn Books.
- Kitschelt, H. et al (eds.) (1999): *Continuity and Change in Contemporary Capitalism*, New York.
- Kosta, Jiri (1997): *Die ökonomische Transformationsstrategie Tschechiens im Vergleich zur Slowakei, Ungarn und Polen*. Berlin, WZB, working papers FS II 97-602.
- Kotarbinski, Tadeusz (1965): *Traktat o dobrej robocie*. Warszawa , Ossolineum/PAN.
- Krugman, Paul (1996): *Pop Internationalism*, Cambridge, MA. MIT Press,
- Kuklinski ,Anton (ed.) (1995): *Nauka – technologia – gospodarka*. Warszawa, KBN.
- Langlois, R.N.(1990): *Creating External Capabilities – Innovation and Vertical Disintegration in the Microcomputer Industry*. *Business and Economic History* Vol. 19. No.1. 93-102.
- Lemoine, F. (1996): *Croissance Industrielle et dynamiques sectorielles en Europe Centrale*. Paris, Document de Travail CEPII No. 96-15
- Lewis, W.A. (1978): *The Evolution of the International Economic Order*, Princeton, Princeton University Press.
- Lissoni, Francesco (1999): *Technological Expectations and the Diffusion of “Intermediate” Technologies*. Milano, CESPRI Working Papers No.109. December.
- Lubacz, Józef (1996): *Infrastruktura informacyjna – opsję I dylematy rozwoju*. Konferencija naukowa CUP: “Integracja europejska w obliczu ery informacyjnej [postindustrialnej]”, Warszawa, 5.12.1996
- Lüthje, Boy (1998): *“Vernetzte Produktion” und “post-fordistische” Reproduktion*. *Theoretische Überlegungen am Beispiel “Silicon Valley”*. PROKLA .No.113 vol.28. 557-588
- Malerba, Franco – Nelson Richard – Orsenigo Luigi – Winter Sidney (1998): *“History friendly “ Models of Industry Evolution – The Computer industry*. Milano, CESPRI Working Papers No.105. May 1988.
- Mansell, Robin – Steinmüller Edward W.- When Uta (1999): *Indicators of a Sustainable Information Society – Policy Analysis and Application*. Sevilla, IPTS Report No.32 ISS4E326.html.
- Martin, R. (1998): *Central and Eastern Europe and the International Economy -the Limits to Globalization*. *Europe-Asia Studies*. Vol.50.No.1.
- Meijer, Rudolf (1997): *Information Society and the Countries of Central and Eastern Europe*. Working Document. Brussels, EU DG XIII, November 1997.
- Mueller, J. (1998): *Restructuring the telecommunication sector in the West and the East and the role of S&T*. Final Report -Industrial Restructuring. TSER Project Restructuring and Reintegration of S&T Systems in Economics of Transition. Berlin, FHW, September 1998.

- Mytelka, L.K. (1993): Rethinking Development – a role for innovation in the other “two thirds”. *Futures*. Vol.25. 5. 694–712.
- Nelson, Richard (1994): The Co-evolution of Technology, Industrial Structure and Supporting Institutions. *Industrial and Corporate Change*. Vol.3. no.1. 47–63.
- Nowak, Michael J. – Grantham Charles E. (2000): The virtual incubator - managing human capital in the software industry. *Research Policy* Vol.29.1. 125–144.
- Pellegrin, Julie (1999): German production Networks in Central/Eastern Europe. Between Dependency and Globalization. Berlin, WZB, working papers FS I 99–304.
- Perez, Carlota– Soete, Luc (1988): Catching up in technology – entry barriers and windows of opportunity. In: Dosi G. et al. [eds.] *Technical Change and Economic Theory*. London, Pinters, 458–479
- Porter, M.E. (ed.) (1986): *Competition in Global Industries*. Boston, Harvard Business School Press.
- Radosevic, Slavo (1999): Transformation of science and technology systems into systems of innovation in Central and Eastern Europe -the emerging patterns and determinants. *Structural Change and Economic Dynamics*. Vol.10. .2. 277–320.
- Rajogopalan, S. (1999): Adoption timing of new equipment with other innovation anticipated. *IEEE Transactions on Engineering Management*. Vol.46. No.1. 14–25.
- Reddy, Prasada (1997): New Trends in Globalization of Corporate R+D and Implications for Innovation Capability in Host Countries– A Survey from India. *World Development*. Vol.25. No.11. 1821–1937
- Rodrik, Dani (1997): *Has Globalization Gone Too Far?* Washington. DC, Institute for International Economics.
- Ronstadt, Richard (1977): *Research and Development Abroad by US Multinationals*. New York, Praeger.
- Rosenberg, Nathan (1976): On technological expectations. *Economic Journal* vol.86. 523–535.pp.
- Rudolf, Hedwig (ed.) (1995): *Geplanter Wandel, ungeplante Wirkungen. Handlungslogiken und -ressourcen im Prozess der Transformation, WZB-Jahrbuch No.2*.
- Saeger, Steven S.: *Globalization and Deindustrialization– Myths and Reality in the OECD*. *Weltwirtschaftliches Archiv*, 133 [4] 579–608
- Saxenian, A. (1994): *Regional Advantage. Culture and Competition in Silicon Valley and Route 128*. The MIT Press. Cambridge.Ma/London.
- Sedaitis, Judith B. (1997): *Commercialising High Technology -East and West*, Boulder, Lanham.
- Soskice, David (1999): *Globalisierung und institutionelle Divergenz -die USA und Deutschland im Vergleich. Geschichte und gesellschaft*. Vol. 25. 1. 201–225.

- Stallings, B. (ed.) (1995): *Global Challenge, Regional Response. The New International Context of Development*. Cambridge, MA - New York.
- Stoneman, P.- Toivanen O. (1997): *The diffusion of multiple technologies -an empirical study. Economic of Innovation and New Technology. Vol.6. no.1. 1-17.*
- Sundvist report (1989): , "New Technologies: a socio-economic strategy for the 90s", Paris:OECD.
- Wang, E. (1999): *The Impact of ICT on Taiwan's Economic Development. Telecommunication Policy vol.23. Special Issue on Convergence and Development in East Asia.*
- Warren, B. (1973): *Capitalism and Industrialization. New Left Review, No.81. 3-44.*
- Waterbury, John (1999): *The Long Gestation and Brief Triumph of Import Substituting Industrialization. World Development. Vol.27.1999.2. 323-341.*
- Weiss, A.M. (1994): *The effects of expectations on technology adaptation - some empirical evidence. Journal of Industrial Economics. Vol.XLII. 341-360.*
- Wierzbicki, P.A. (1996): *Informacja jako zasob -wpływ na stosunki społeczne i gospodarcze w krajach rozwiniętych. Konferencja naukowa CUP: "Integracja europejska w obliczu ery informacyjnej [postindustrialnej], Warszawa, 5.12.1996.*
- Wydro, K.B. (1997): *Rola telekomunikacji w kształtowaniu społeczeństwa informacyjnego. Bydgoszcz, Krajowe Sympozjum Telekomunikacji.*
- Zacher, Lech W. (1996): *Informacja jako czynnik rozwarstwienia gospodarki światowej. Konferencja naukowa CUP: "Integracja europejska w obliczu ery informacyjnej [postindustrialnej], Warszawa, 5.12.1996.*
- Zysman, J. - Doherty, E. - Schwartz, A. (1996): *Tales from the Global Economy. Cross-National Production Networks and Re-organization of the European Economy. Berkeley, BRIE Working Paper 83, June 1996.*

part three

changing social environment

The Blurring Dividing Line between Public and Private and the Redefinition of the Public Sphere

MÁRIA HELLER

The appearance and rapid spread of new information and communication technologies (ICT) has changed not only individual communications practices but also the lay *and* scientific representation of social communication. Communication is no longer seen as just one of the spheres of social life; it is increasingly seen by social scientists as a basic social category, a driving force of social integration (Habermas 1981). The theories of information society (Machlup 1962; Bell 1973; Masuda 1980; Toffler 1990; Porat 1977; Webster 1995; Castells 1996–97) treat communication, and the societal dimensions of its changed position and significance, within a dual concept that overlaps sociology and communication science. They investigate the sociological and communicational conditions for, and consequences of, the evolvement of information society from this common ground.

Rapidly developing new ICTs have resulted in a significant transformation and expansion of the definition of the communication situation itself, and in overall changes in the social representation of communication. A more comprehensive, more generalised image of communication is evolving and includes widely diverse types of direct and indirect communication. In contrast with previous scientific frames of reference, we are witnessing the evolvement of a theoretical trend, focusing on the notion that the various forms of communication (direct, inter-personal and all types of media-related mass com-

munication) are to be treated in a common theoretical framework. Increasingly dominant within it are studies of relationships (similarities and differences) among the various forms of communication.

Media-relayed communication offers an opportunity to access communication events over a wide berth of space and time. Increasing use of new ICTs is widening the notion of the public sphere and bringing about an abstract interpretation of access, as well as a mass opportunity to actually access information. Many researchers (Keane, Meyrowitz, Flichy, etc.) believe that the vast acceleration in the development of technological possibilities has led to a second transformation in the structure of the public sphere, following the first structural transformation described by Jürgen Habermas (1962). According to John Keane, several overlapping public spheres (micro, mezzo, macro) are evolving, precipitated by the new multitude of communication devices. Joshua Meyrowitz says that the public sphere brought about by the new tools of communication has broken down what were once firm boundaries between private and public. Behaviours and topics once limited to the private sphere have become public, primarily through television.

Indeed, the spread of the mass media has expanded the circle of visible, accessible communication events and has had a powerful influence on opening up the private sphere. This development mainly concerns a non-personal, non-physical presence, in other words, public access is relayed by the media, primarily the mass media, where audience participation is passive. However, the dissemination of the latest communication technologies have supplied the portion of the public open to innovation with media devices that also enhance private, personal communication opportunities such as mobile phones, mobile Internet, WAP (wireless application protocol), and DPA (digital personal assistance).

Prior to these developments access to private communication was either through physical presence (direct face-to-face contact) or through the very first of the media-relayed connections: the written word. Printing resulted in a sudden and vast expansion in accessible acts of communication, creating a typical way of exposing the private sphere to a public audience. This includes most of artistic communication, which evolved in parallel with, or according to Habermas, before the public sphere focusing on public topics. As secular narrative genre including the novel took shape, general human public themes were soon followed by thematisations of events in private life

(the picaresque novel, romantic histories, portrayals of private lives masked as historical novels). These developments made a significant contribution to redrawing the boundaries between the private and public spheres, to bringing about audience self-reflection, and to constructing the audience itself. This type of communication is, however, quite symbolic: the private sphere appears through universalistic transformations, thematised through sublime artistic filters, artistically constructed. In the later development, though the wilfully shaped, artistically designed private sphere still exists on television, commercialised mass art and reality transformed on lower levels of symbolisation (soap operas, weekly serials) have increasingly dominated the medium. Meanwhile, the private sphere has come forward through an even newer development involving the participation of anonymous speakers and a rise in the expression of private opinion (talk shows, debates with well-known or anonymous participants, growing appearance of no-name lay persons in news broadcasts, call-in shows). This trend pretends to relay public opinion in a media-type format, but what we are seeing is no longer a consensus of public opinion in the normative sense, or even a public opinion concept presented as an aggregate of private opinions compiled by opinion polls through representative surveys. It is, instead, an illusion, a substitution of one form of public opinion, a non-representative arbitrary look-alike, or in the best of cases, possibly a presentation of a plurality of opinion.

The need to distinguish between active and passive participation in the public sphere is becoming increasingly urgent since the public sphere itself is changing shape under pressure of the new communication technologies. Habermas's theory of the public sphere (1962) does not thematically separate active and passive access, nor does it explicitly discuss the connection between interpersonal, direct interactions and indirect media-relayed communication. In the emptied public sphere of the 20th century as investigated by Habermas, the consumer is no more than a passive participant in a media-dominated pattern of communication. Habermas, however, does not discuss the direct channels of interpersonal communication in the era of the contemporary public sphere, or consider the possibility of active participation in the public sphere. The Habermasian theory postulates an interrelationship, a simple melding of active and passive access, in the era of the classical public sphere. He saw public debate in the newspapers and among a speaking, savvy audience as organi-

cally interconnected, or put another way, he believed that the first institutions of the mass media were tightly linked to a public sphere based on direct interactive communication. He saw the active, conversing public sphere (clubs, salons, scientific circles, etc.) as closely connected to the public sphere of the press, debating the themes of the political public sphere just as the newspapers. The idea assumed active, broad access to the issues of the political public sphere on the one hand, and on the other it postulates that these two configurations, direct interaction and indirect media-related communication, were closely interrelated with traversable boundaries. Habermas sees the roots of appearance in the public sphere and the evolvement of an active communication competence in the literary sphere, which elaborates the thematics of individual autonomy and the modes of discussing them, as well as the competencies to manage personal and psychological relationships and problems. This is why Habermas assumes that literature as a public sphere precedes the political public sphere despite the absence of reliable evidence. In many respects, the elaboration of the relationship between the literary and political public spheres has remained implicit in Habermas' theory of the public sphere. It is clear, however, that in this theory, societal activity and the communications of civil society constitute the political public sphere and the boundaries between the two are traversable. Here, we can, therefore, touch on one of the normative aspects of Habermas' public sphere theory.

Even in the initial period marking the appearance and development of new communication technologies the abstract representation of the public sphere began to change, and there was a decisive transformation in the behaviour of public sphere users, and in their modes of accessing it. In even the first (limited mass media) of the three phases of mass media development distinguished by Eli M. Noam (1996) audience participation in the public sphere is viewed as passive, though this passivity becomes far more dominant in the second phase, that of the multi-channel media. With the historical growth of a public sphere operating through the media-relayed implements of indirect communication, we enter a period of time in which the only access to an increasingly broad range of communication events is passive. Initially and typically of the first phase, there was a concentration of attention around the public issues raised by the media (few radio and television stations, generally government controlled). The

second phase saw a significant growth in the privately owned media, which triggered a decentralisation of attention, a fragmentation of the audience. (Angelusz 1998, 2000) One part of the evolution was the hollowing process described by Habermas, when real discussion of significant public matters was replaced in the media by a choice of topics of consumer culture attaining high public interest. The outcome was audience alienation, and the overall dominance of a passive consumer conduct. In the second phase defined by Noam, which still dominates the present-day global media, we have witnessed an extreme mixing of information, news, and real public affairs with entertainment, items of interest to the voyeuristic audience, topics intended for purely passive consumption (infotainment).

The third phase, the era of the *cyber-media*, is currently taking shape and brings about the opportunity for active participation. As the new ICTs spread, many analysts see hopes for a fundamental change in the act of communication, a reverse in the erosion of the public sphere, a reappearance and re-institutionalisation on a higher level of a democratic public sphere that actively involves large audiences. The new ICTs are establishing many new forms and genres of communication and disseminating them with lightning speed, both transforming communication habits and escalating communication opportunities.

THE PUBLIC SPHERE: FOCUSING ON EACH OF THE THREE PHASES

The era of limited mass media

In the era of *limited mass media*, there were comparatively few mass media devices in the public sphere. Nevertheless, the significance of the media had grown in comparison to the classic era of civil society, and it now carried added weight and importance. This was a time when most of the audience had access to one and the same means of mass communication, and when most of the audience actually became a recipient of these acts of mass communication. The period was typified by the sharing of a joint experience, by the integrating experience of common participation in a uniform public sphere. The topics raised by the mass media had an enormous power of attraction, and

offered people a chance for a common experience with readily accessible communication tools and common topics of conversation. (Luhmann 1971) The public sphere brought about in this way by the mass media was strong and uniform, partly because everyone, the whole of society, was accessible through its means. At this time, the media had a powerful influence on concentrating and focusing attention. (Angelusz 1998)

The era of the multi-channel media

The change in the media market, the trend towards the appearance of a steadily growing number of highly competitive players, radically altered the public sphere and its mass communication segment in phase two, *the era of the multi-channel media*. The most definitive difference was in the shift and relativisation affecting existing, formerly stable, clearly demarcated boundaries. (This process of shifting boundaries has continued in phase three.) The audience became highly fragmented (Angelusz 1998), dividing its attention among a wide variety of mass media. In the process, the role in social integration formerly played by the joint media experience came to an end.

The changes had a strong influence on accepted definitions of *public* and *private*, shifting the boundary between the two. Several flows combined to induce this boundary-shift:

- a) The issues most extensively discussed in this context are the different types of ownership in the media market. They range from purely public to purely private, with a wide range of variations of the two in a broad grey scale. The complexity of the situation is compounded by the fact that despite legislative regulation and normative expectations, both government-owned public media services and privately owned commercial media are at the mercy of (very differing types of) owner influence. Analysts and public opinion expected privatised commercial media to counter the political pressure put on government-owned *media* by power politics, particularly in the East European public sphere.¹ In contrast, the public media in Western Europe have a high level of prestige in the public sphere, thanks to their role in

1. See: The media war and its echo in the press prior to the second free Hungarian elections in 1994 following the change in political system. (Heller 1996)

counterbalancing the economic influences on the privately owned media, or at least to the expectation that they play this role.

- b) The blurring of the public/private boundary is, however, not only apparent in ownership, but also in tasks and functions. Increasingly keen competition between various media outlets has led to dominance of their entertainment function and a decline in, and erosion of, their role in public discourse on public affairs. Both legal regulators and general expectations consider discourse on public affairs principally as the task of the publicly owned public service media. However, regulations almost everywhere include stipulations mandating privately owned commercial media to fulfil certain public service obligations, though to differing degrees². As a result of the high level of competition, even the public issues presented by the media are designed as consumption goods and not as issues for active participation or debate. This tends to put the stamp of entertainment on even political matters and public affairs.³

The continuing validity of normative values, however, is underlined by the fact that the media use a variety of methods to disguise their tendency to commercialise real public discourse. To prove their continuous relationship with the public, the audience, the citizen, to present what they deem to be a media representation of the citizens, they have magnified the role of the common person, the man/woman-in-the-street. The trend is particularly strong in the public

2. This is principally true for the electronic media; the very nature of the written press is such that legislative regulation of this function is less acute.

3. The phenomenon is particularly observable in programmes that present political themes mixed with entertainment, purely for consumption. Various talk shows fit into this mould. In addition, the settings of various debate programmes that do focus on political issues show signs of influence by the entertainment industry. This includes the television atmosphere of various programmes and the orchestrated on-site images. One infamous example was a programme on French television called "Durand la nuit"[sic!], which set up its debaters inside a boxing ring. The setting used in this instance suggested that the real debate wasn't sufficiently entertaining, that the programme had to be orchestrated as an entertainment show. It also precipitated the end of the programme: one of its shows ended up in a big fight among participants on-stage in direct.

media, but also in the portion of the commercial media programmes aimed at meeting legal public service obligations⁴.

The distinction between public and private, one of the most important principles anchoring social order in this modern era⁵, set the media right between the two spheres. The shift in the public/private boundary also has decisively changed the public sphere. The conclusion of the Habermas model is that for the public sphere to operate there must be a forum accessible to all, where various social experiences can be expressed and exchanged. In this public field, various views confront one another in rational discourse. The concept embodies the assumption of a normative public sphere, of a platform that presents various alternatives, does not limit participation, and thus grants scope to critical control of government policy. In the era of multi-channel media, it was considered principally the job of the media to bring about these platforms, since society could be reached through the media. Therefore, the role of the media was expected to create the conditions for this rational discourse and to present widely diverse interpretation schemata. But, these very same considerations led to the conclusion that the public sphere could not be identical to the public service media. When government finances the public me-

4. The trend is apparent in Western European public media newscasts, when not only specialists, authorities, etc. are given a voice in discussing various events, for the microphone is also turned over to “the anonymous little guy,” a representative of the “public,” for an opinion. (Street interviews, lay witnesses, etc.). The same phenomenon is behind a growing number of prime time (primarily public) television shows involving debates among lay people on the most diverse social topics (e.g.: French Antenne 2: *Ca de discute*: on homosexuality, family violence, adoption, medical responsibility, etc. There are many other examples).

5. Transgression of the rules defining this principle is equivalent to breaking the rules of society, and any means that does this only can be considered legitimate in exceptional situations such as cataclysms, war, or revolution. Considering something to be legitimate, of course, does not necessarily mean it has been legitimised successfully. One example of this could be Hungary, where there have been many private narratives from the time of Soviet occupation describing how the boundaries of private life and private property lost their inviolability. There might be a similar analysis of public/private boundaries suspended because of natural disasters (earthquakes, floods, etc.) when private narratives of suffering, in other words, the projection of individual suffering onto a mass scale is what gives the mass media its topic. Narratives revaluing the 1956 revolution in Hungary also are interesting in that their thematics involve practical applications of the distinction between public and private that remained valid despite the extraordinary situation: people not stealing from shops that had had their doors shot open, etc. Periods of revolutionary situations, of great change, are often connected to attempts to delete old definitions and create new ones. Under these conditions, the boundaries of the private sphere become dubious.

dia, limits or controls upon the public sphere cannot be precluded. Moreover, the commercial media, dominated by its entertainment function, are not up to meeting the tasks stemming from normative principles, either.

- c) The concept of public sphere in the Habermas model is based on separation of public and private. In this model, the only legitimate parts of the public sphere are public affairs and public interests, while private and group interests are part of the private sphere. The concept of an ideal public sphere is one of a neutral sphere where real consensus can be reached through rational discourse. This representation of the public sphere is static and apolitical, and runs contrary to real experience. It does not calculate with changes in the public sphere, with changing definitions of public and private, or with the real operation of society, that is, with the strength of various interests. The existing public sphere is much more a constant struggle for hegemony over the legitimacy of categories and definitions. It is not an ideal field and it is not neutral.

The normative model has been sharply criticised by among others feminist researchers. According to feminist philosopher Nancy Fraser, even though the public sphere is a forum for public affairs, this does not necessarily mean that only public affairs can be debated in public. In her views, the workings are exactly the opposite: an issue only becomes one of public interest after the various social groups have defined their own group interests and have manifested them in the public sphere. Many themes that had previously qualified as private issues impossible to debate in public entered the domain of public communication because of feminist discourse. These topics included rape within marriage and many different psychological, legal, and other issues, which became public topics precisely because there were public actors able to present them as non-private issues of universal validity. Feminist discourse did make major changes in the public sphere, successfully shifting the public/private boundary. This is typically symbolised by the motto of Women's Lib: "Personal Affairs are also Political." In other words, actors in the public sphere can make strategic use of the public/private dichotomy, applying distinction of categories as an effective political-ideological tool either to legitimate issues, or to revoke their legitimacy. The public sphere

theory of sociology must pay attention to the constantly shifting boundary between public and private, and to the battle of the political forces shaping it. The media, which stands at the boundary between public and private, plays a major role in this symbolic struggle.

- d) Another view to be considered claims that too narrow an interpretation of a rational public sphere touches on only the informative aspect of the media, while its increasingly growing entertainment aspect is also playing a significant role in transforming the public sphere. The discursive elaboration of certain topics takes place within the genre of entertainment rather than through rational discussion (e.g.: in programmes such as the Aid for Africa solidarity, Telethon, or films made within the entertainment industry that focus on subjects such as violence or paedophilia, etc.) As the entertainment function becomes dominant, the problem of the legitimating force and elaborating power of the public sphere will be increasingly put forth, and it is conceivable that the role of rational discourse to elaborate and provide legitimacy for various topics will be forced to yield to new, emotional or other forms of discourse.⁶
- e) The growth in social control exerted by the public sphere is another change in the public/private boundary. This process has become vastly intensified in the third phase, the era of the cyber-media, as the registration potential of the media accelerates through participation in networks and technological development. Through the use of cyber-media a variety of diversified information becomes available about users, which can be saved and used for a variety of purposes, including business, politics, etc. This raises the issues of data protection, the protection of personal information, of the private sphere, and of privacy in general.
- f) While Habermas saw an emancipatory function in the public sphere, Foucault believes that instead of being a liberator, the public sphere is introducing increasingly effective social controls and power regulation. (Foucault, 1966) Thus, subjects drawn into the public sphere and subjected to public discourse are no

6. See e.g.: research by L. Boltanski, on media presentation of suffering (Boltanski, 1993) or studies by P. Paperman on the public presentation of emotion. (Paperman, 1992)

longer a part of the private sphere, and freedom of privacy no longer extends to these newly public areas. The ideological game of the public sphere involving excluding/including, is an important mechanism for exerting control over the insiders and excluding the outsiders and the legislation of social rules and procedures.

- g) In phase two as distinguished by Noam, the technological advances of the media have had a powerful influence on the public sphere, including its structure, its functions, and its rules governing public discourse. The prior public sphere had been strongly dependent on the printed media: the topic definitions, the agenda-setting, and the rules of communication behaviour set by the press had essentially defined the public sphere.⁷ The evolution and spread of telecommunication changed not only the content of information, but the modes of communication and the rules of behaviour for communicating in public as well. Meyrowitz (1986) focuses on these changes in the deservedly famous work, "No Sense of Place".

Meyrowitz (1985) called attention to the radical change in the relationship between the public and private spheres and in the convergence of the two behaviours induced by the mass media. The theory combines the issues of perception and the technological determination of codes raised by Harold Innis (1951) and Marshall McLuhan (1962, 1964) with Erving Goffman's concept of the various communicative roles played by the individual. According to Goffman's theory, every individual has a number of roles, and plays different ones in different social situations. The various roles do not interfere with one another. Instead, they are parts of an individual's repertoire, and each is employed in a different social environment or situation in the limited multiplicity in which the individual lives.⁸ According to Meyrowitz, Goffman's theory left very little room for role behaviours to change. While McLuhan forecast the changes, saying that the elec-

7. We can capture this decisive influence in the universalistic style of discourse, in compulsory use of elaborated language, and even in its refusal of emotional argumentation.

8. At this point we have to mention similar theories by other scholars of communication theory and sociology of language (Gumperz, 1962; Nadel, 1957). They have postulated similar theories, and also have indicated the existence of role and code repertoires, which explain the varied social practices of an individual and the sum of the various repertoires employed in individual societies.

tronic media would change human behaviour and communication, he did not explain the reasons behind, or the nature of, the changes.

According to Meyrowitz, telecommunication was more than just a new tool enabling "situational environments" hitherto separated to communicate, but was bringing about new media which would radically change the social situation itself. Social identity, socialisation, and the systems of prestige and hierarchies in a society are constructed through social situations. Once, these situations and the way they were perceived were defined by space and time relations. Societal life rested on a firm foundation of segregation, of discrimination, of exclusion and inclusion. The given societal situation influences the roles people choose and how they play them, and at the same time it also triggers the distinction between on-stage and off-stage behaviour. Earlier, a person was permitted to go off-stage in behaviour within her/his own group, when unseen by outsiders and undesirables, who could not follow inside events or monitor inside communications or behaviour. When in public, however, when roles and behaviour were visible, on-stage behaviours were mandatory. As a result, the public sphere was made up principally of the on-stage behaviours of the various societal actors, in other words, of official, formal, and carefully rehearsed behaviours. Goffman and others thought of the social roles within the concept of "place", while according to Meyrowitz, the electronic media has undermined the traditional relationship between physical location and social situation. In the era of written media there were major social differences in access to the messages, the communication situations. Today, not only have space-time barriers been bypassed by the telecommunication infrastructure, but access also has become broader than ever before. Multi-channel media have expanded access to the audio-visual world because, as opposed to the written media, its language is easy to learn and apply. The written public sphere is a more universal, formal, impersonal one, while the electronic mass media use a language closer to the particular, it being informal and adapted to personal thematic, behavioural modes and linguistic varieties.

The mass media enables broad-based audiences to access situations, groups and actors (and to do so in their own private spaces, at home and in their recreation areas) from which and whom they had previously been cut off. This expanded audience can now look into private situations that it had previously been unable to see, and can

access forms of behaviour and communications, which had once been hidden from it.⁹ Meyrowitz differs from Goffman by shifting emphasis from time-space limits to obstacles to perception, believing that the radical change in the new media is precisely in relaxing these limits.

Because of all these changes, the spread of the electronic media also changes the audience. Previously limited situations, accessible only to restricted groups, become open. Various audiences become mixed and so do the various levels of the public sphere that had previously been open only to limited audiences. Increased access through the media offers increasing opportunity to look into the off-stage behaviour of other groups. This influences the behaviour of the groups towards one another. As a result, the public sphere has become more dynamic because it is no longer based on only one (on-stage) behaviour. The result is a change in private and public behaviours. The sharp dividing lines between on-stage and off-stage situations also become blurred. The overall result is a change in the concept of adequate behaviour. "Electronic media have combined previously distinct social settings, shifted dividing lines between private and public toward the private, and weakened the relationship between social situations and physical places. The *logic* underlying situational patterns of behaviour in a print-oriented *society*, therefore has been radically subverted." (Meyrowitz 1985: 308).

Meyrowitz has created a new *concept of social situation*, which includes physical place as well as the media's *informational setting*. *The situations* are defined as *information systems*. *While* the media are a technical opportunity to overcome the obstacles of space and time,

9. The metaphor employed by Meyrowitz is truly on target: he describes the world presented by the media as a building with all the inside walls removed. The most hidden portions of the private lives of others, including locations, events and happenings become accessible to all. This change has been amplified with the shift to the genres of mass culture. The trend can be traced through the extraordinary increase in the number of soap operas, where the day-to-day lives and private stories and behaviour of various social strata are set before the public. (See: e.g.: *Dynasty*, *Beverly Hills, Dallas*, or the Hungarian soap, *Szomszédok* (Neighbours), etc.)

The counter-argument that the written media included private stories, too, is unacceptable. On the one hand, consumption and reception of the written word operates along a different mechanism and has a different level of efficiency than the visual genre of mass culture, and on the other, the cognitive stratification of the public section was once stronger than it currently is. The private stories of the past's haute culture presented on-stage behaviour. So the true change came with the electronic media, primarily with the spread of television.

the shifts in boundaries that occur create *radical change in the social* situations of the participants. As opposed to the written press, they do not maintain social segregation but undermine it by bringing about an infrastructure in which it becomes possible to evolve a “common information environment” for various social groups. According to Meyrowitz, the electronic mass media break down the hitherto existing correspondence between physical place and social space. They also change accessibility to physical place by offering audiences illustrative, colourful, moving images of distant places and events there, which otherwise would never be accessible to them. Thus, they create happenings and experience resembling the real, living ones so closely that one can almost be mistaken for the other. Since audiences and publics become mixed, their roles also grow more similar. Social identity is no longer defined by only one space-time setting (one’s own socio-cultural group) but is also strongly influenced by the identities of other groups “seen” through the public sphere, woven by the media into a personalised, emotional and individualised fabric, making it easy to copy and identify with. The result is the decentralisation of identity. Meyrowitz demonstrates the significant effects of the electronic media in changing identity and socialisation processes, and in softening the hierarchies. The changes put the public sphere into a different perspective. The blurring of the public/private boundary in the public sphere tends to shift the public sphere closer to the private one. Media-relayed communications increasingly resemble face-to-face interactions and the rules of adequate behaviour in different situations and in public spheres of different breadth become mixed.

Meyrowitz observes the expansion of the public sphere, the broadening of its public character, with the spread of multi-channel mass communication. “...many types of information that were technically ‘public’ in a print culture, yet largely inaccessible to many sectors of the population, are now available to most people through electronic media.” (Meyrowitz 1985: 8). Meyrowitz describes here an expanding process of democratisation of the public sphere similar to the democratisation process investigated by Habermas, a process inducing structural changes similar to the ones Habermas described.¹⁰

10. The mix-up and disguise of haute culture and mass culture also described by Habermas (in which valuable literature is poorly executed and the valueless becomes spectacular and misleading, disguising itself as valuable) has continued. The Forsythe Saga

Under the influence of the shift in the public/private boundary and cut-throat competition, the public sphere has already undergone a significant change in the era of multi-channel media. The most important manifestations of this are the fragmentation of the audience, the increase in private topics, the dominance of the entertainment function, and the weakening of the critical role. The transformation of the representation of the public sphere already appears during this time frame: the questions become whether the concept of a single, unique and uniform public sphere can be maintained. In phase three of the mass media, as the cyber-media spread, this question becomes dominant.

Era of the cyber-media

Phase three, the *era of the cyber-media*, is characterised by the rapid spread of new media, new information and communication technologies. Progress accelerates beyond anything in past experience, and the perspectives offered are totally new. New techniques for communicating, recording and managing data appear, new communication devices are harnessed (fax, mobile phone, DVD, interactive television, e-mail, Internet, WAP, etc.). Digital information management technology appears and in many ways revolutionises communication, creating common frames of accessibility for different types of communication events, independently of their content or the genre in which they appear. Network communication brings unprecedented speed to all communication events, increasing audiences and spanning distance. The consequence of the change is that many theorists of information society have been looking with high hopes upon the public sphere as it has been changed by new ICTs. Many people await a growth in audience activity and the appearance of a widely open public sphere of communication relying on a new quality of mass activeness now that interactive technologies have appeared.

What is social communication like in the era of the cyber-media? Many researchers have compared the significance of the changes triggered by new ICTs to the major turning points in history. Knowledge and information will become vastly more valuable within society in all aspects of societal reality.

was presented as a television serial just like *Dynasty*, and the tools of television presentation were exactly the same for the one as for the other, to give just one example.

Yoneji Masuda (1980) gives an analysis with some utopian overtones defining information society as one in which there is widespread use of electronic networks. The size and significance of the information sector will grow, knowledge will be deemed more valuable and the former social hierarchies will be replaced by horizontally structured institutions. Some researchers of the subject see chances for the reappearance of participatory democracy within information society. Others, such as Frank Webster (1995) and Krishan Kumar (1995) do not believe that the technological changes will bring about new social formations. They think information society only will change conditions, to which industrial societies will adjust.

The most extensive analysis to date of information society is Manuel Castells' famous trilogy (Castells 1996-97). Castells sees the significance of social change in a change in the source of productivity. In information society, information and information-based knowledge will become the most important resource. Thus, the production of knowledge and the technology of information production and its transfer will become the most important element of production, the driving force of further development. According to Castells, this change became both necessary and possible with globalisation and the digital revolution. Networks play an increasingly important role in the organisation of social interaction; an increasingly broad sphere of social activity becomes built around the Net, and becomes organised through the Net. However, according to Castells, the audience sharing in Net communications is becoming increasingly diversified and segmented, since they shape their acts of communication, their consumption of the media, and their bonds to the Net, according to their individual needs. Castells sees the evolution of two radically differing audience groups in the process. Only the competent, privileged part of the audience will engage in individual selection and active participation. This group will take advantage of the freedom offered by the new technologies and will use "computer mediated communication" (CMC). They are the people Castells terms interactive. The other group, which is regionally, socially, culturally, etc. disadvantaged, will simply become a recipient of non-interactive, increasingly commercialised, consumption-oriented communication events offered by the entertainment media and requiring no individual creativity or participation.

Although researchers concerned with information society paint quite different images of the future, including the near future, they

generally agree on their evaluations of the significance of the changes, and in their identifications of trends. As new ICTs advance, as communication organised through computer use increases, and as digital communication and the use of the Net spread, the diversification, scope, and significance of social communication will increase.

Significant changes will occur as information becomes more valuable and as new ICTs become widespread. In fact they have already appeared on the macro-sociological level (through a transformation in the social pattern involving shifts in the employment structure, a change in the relationship between centre and periphery, and in international and social dimensions where the amount of socially necessary knowledge has increased and the content of that knowledge has changed) as well as in the concept of culture and the definition of the public sphere. The concept of the public sphere is becoming increasingly differentiated. The public sphere that was formerly defined on a national-societal level has also spread onto a global level, as there has been a huge growth in shares of and opportunities for communication events that go beyond frames of reference once deemed primary (national, regional, local).

Many researchers see the opportunity for a new, democratic, active public sphere in a world of communications changed by electronic networks because many criteria of this public sphere are considered as necessary conditions of an unlimited public sphere. Characteristics of Internet communication are the absence of a centre, and the lack of a controller or regulatory body or any institutions which could in any way limit content or access. Although there is a society of specialists working with advisors of voluntary committees (the Internet Society), which debates concerns and standardisation issues, there is nevertheless, no mandatory, formal system of standards or rules. Access to Internet is open; communication within it, the roads that can be travelled, the accessible and expressible information is quite free and unlimited, and rules of behaviour and language use are liberal and "self-regulated".

In the new and extended public sphere, the significance of spatial location, the localisation of a communication situation to a place, once a limit in accessing communication events, has changed considerably. A look at prior eras will show a continuous decline in the restriction of the communication situation to a limited space. During the era of verbal culture, communication was strictly limited to place.

One had to be there and one had to participate in a communication situation to have access to the communication. As the written word spread there was a significant decline in localisation, in limitation to place. The written world could be transported and copied, albeit within limits. Nevertheless, communication was expanded in time and extended in space. Transmitter and receiver were no longer required to be in the same place at the same time for an interaction to occur. Printing further relaxed this bond. In the era of electronic communication, the restriction of place became even less of an obstacle, as it became technologically possible and simple to produce, transport, and broadcast huge quantities of photographs, audio-recordings, films, video-recordings, etc. With Internet, the issue of place regarding both communication and accessing information has become even less significant.¹¹

The same trend is occurring with regard to time and access to communication events. In the era of oral communication, time was a defining factor, the same as place. Access to a communication situation was possible only if one was in the right place at the right time. With the written word, particularly with the printed word, the power of time declined. It might even be said that the communication situation stretched out over time, that time limits became relaxed, just as the limits of place declined. As electronic means of communication spread and recording techniques improved (film, video, CD, DVD, etc.) independence from time improved. The Internet relaxed time constraints even further. In addition, the amount of time needed to access information, or to perform an act of communication, declined considerably.

As the above changes occurred, there was a parallel substantial growth in the numbers of users accessing information and communication. Even the appearance of the written word resulted in a wide expansion in the audience, a trend that became stronger with print, and grew even more with the appearance of the electronic media. The Net can increase the audience accessing the various acts of communication even further, while making it possible for users to gain the most precise, the most personalised access to the various items of informa-

11. It is possible to access huge libraries and databases, and any Internet message becomes accessible anywhere in the world. With the highly debated yet ingenious Napster programme, any work of music ever produced by humankind is accessible to any net-related computer, anywhere in the world.

tion or communications.¹² As had occurred in past communication revolutions, the Net makes it possible to access public communication events intended for masses of people increasingly rapidly and accurately, while also offering a chance to send and receive personal, non-public messages with the same increasing speed and accuracy.¹³

With Internet communication, access opportunities have increased to such a degree that artificial barriers have to be introduced to limit access in some cases in order to protect privacy, for instance, through the use of passwords and encryption. (See, e.g.: Zimmermann: *Pretty Good Privacy*, 1993)

Very radical changes have occurred in the structure and nature of the messages themselves. In past communication revolutions the most common structure of language-coded messages was linear, but in the various phases of development, the linearity of messages became increasingly complex and differentiated. Breaking up of the linearity characterises the communication defined by the new technologies. Although it was possible to create non-linear messages in the era of written and printed communication¹⁴ (such as a dictionary or an encyclopaedia, etc.), this trend has become much more powerful with the appearance of the electronic media. A radical change from the linear aspect was hypertext¹⁵ (W. Bush 1945; T. Nelson 1964), once again

12. See: search software which make it possible to personalise the meeting of information and communication needs.

13. An interesting mixture of public and non-public can be found in chat rooms. Anyone may enter a chat room and chat with others, but it also is possible to hold a private conversation with anyone else in the chat room, inaccessible to all others. Chat room visitors also have the option of excluding a generally disliked person.

14. We are, of course, discussing here messages coded through language

15. Nelson used the word "hypertext" to describe texts that were not sequential, that contained branch-offs, that required the reader to make choices. As the choices were made it became possible to investigate such texts in alternative ways, with the reader, the recipient choosing the alternative routes to travel through the text. In this way the personal freedom of the reader to make decisions and selections increased. Electronic data management and digital coding on the Net enhances this freedom, since it offers similar opportunities not only for written texts, but also offers means for moving among photographs, images, audios, and motion pictures. This opportunity leads to the intertextualisation of culture, blurring the difference between reader and writer, creator and recipient, since with this increased freedom the recipient is not only able to create a variety of interpretations of the communicative act of the creator (Eco 1962), but can bring about variations and transcriptions in the very content and form of a once created text.

becoming significant with the appearance of the Net.¹⁶ The acts of communication, texts and discourses that can result may have complex deep structures, a widespread system of references, and may facilitate access designed to correspond to specific user demand. This structural complexity allows for far greater degrees of communication freedom than was possible earlier. The new ICTs also result in a significant change in audience or user attitudes as recipients. While the eras of oral, written, and printed communication assumed a certain active reception of the communication content, the appearance of the electronic media reduced active reception, and weakened the role of creative fantasy. The virtual reality brought about by the new media has changed this trend, returning activeness and fantasy to the recipient, and also particularly increases them on the speaker's side. One of the most important changes in the era of the cyber-media is precisely the restoration of active participation. Interactive communication that was neglected by the multi-channel media, has again appeared to a growing degree, allowing responses, all sorts of feed-back, a free expression of opinion, and an increase in creative activity.

The appearance of digital and network communication is changing the structure of the public sphere from a number of aspects. It has integrated all forms of communication from the most private and personal interactive communication to the most strongly media-relayed mass communication situation. Some characteristics of Net communication on the one hand are linked to the non-public communication sphere (for instance, limited access private communication events, likened to correspondence or a telephone conversation, can be conducted through it, but also interactive non-public groups like friendship circles or hobby groups or circles of civil society can use it to discuss various topics). On the other hand, different other criteria place the Net among the mass media (there is practically no limit to Web access, the system is open, and is essentially media-relayed, etc.). With the spread of Net use, open communication systems are becoming increasingly more dominant, and even the older means of communication are entering more integrated systems (multi-media). Digi-

16. We can make only a brief reference here to ongoing investigations of the author and A. Rényi concerning discourse theory, in which the erosion of linear, sequential structures is being analysed using various "texts." They included programmed textbooks, Péter Esterházy's "Production Story," Ferenc Temesi's "Dust," Thornton Wilder's "The Bridge of San Luis Rey," Samuel Beckett's "Krapp's Last Tape," Mihály Kornis' "Kádár," and Kanako-Kato-Shono's "Alice" CD-ROM.

tal and Net communication combine the most diverse information storage and transfer technologies. Spoken and written texts, images, data, sounds and motion picture technologies can be managed simultaneously, within a common integrated media. As a result, it can be expected that societal communication habits will become transformed and re-stratified, and the public sphere will become restructured. The mode of cultural reception and consumption will change as access to culture also becomes transformed. The various cultural genres and forms are becoming part of a common integrated communication system, and their relationship to one another will change as a result.

Radical changes may occur in relations between individuals and between different social groups. As new ICTs become increasingly widespread, the open nature of the Net to communication may vastly increase chances for establishing and maintaining relationships (both strong and weak bonds, Angelusz 2000). New relationship forms specific to the Net can evolve, and both the order of magnitude and the density of various communication events may grow, as figures already show. More or less stable, limited or broader communication communities can evolve around specific topics or interests (Luhmann 1971), with interest in the topics connecting equally active communication partners.¹⁷ All of these possibilities project prospects for a more open, more active society, more sensitive to using modes of communication to reach consensus, and suggest the possibility for a continuously operating, increasingly refined elaboration of common meanings and interpretations.

As the significance of place continues to decline and localisation loses its importance, the dichotomic concepts of public/private will again change. As distance-work becomes increasingly possible via the Net, there will be changes in the relationship between workplace and home, changes in the lifestyles and day-to-day schedules of the various social groups, and changes in the relationship between urban and rural areas. Internet communication is expected to change the structure and operation of industry and trade, and can even lead

17. See: the wide variety of professional, lifestyle, entertainment, hobby and identity-based chat rooms and forums on the Net.

to a radical structural transformation in mass production, mass culture and the cultural industry as a whole.¹⁸

As the role of information and knowledge grows, relations of social inequality will change, since the sources of inequality will become restructured. Social power will become increasingly dependent upon power over information. As the tools of communication and knowledge are suddenly transformed, the significance and content of illiteracy also will change. The category of minimum necessary societal knowledge will expand rapidly, and ability to use the new tools of communication will increase. Differences in the competencies of the various social groups may continue to expand. The result can be significant change in the overall societal patterns. The position and significance of the various social groups in relation to one another may undergo a restructuring, and the gap between the communication haves and have-nots within a given society may grow. The centre and periphery relationships between nations or regions also may be shaken up. Earlier disadvantages can grow if there are entire societies or regions cut off from global communication. It also might happen that membership in the global community is limited to the elite of a society on the periphery, which can widen the gap within the given society.

As information society evolves and global communication is heightened, many new questions have come up regarding the structural transformation of the public sphere, and researchers are only now beginning to tackle them. The changes are a watershed, and for the moment only the trend lines have taken shape. It already appears clear that the number and proportion of horizontal communication bonds will rapidly grow. Many scholars are predicting a democratisation of the public sphere, which they see as the result of faster and easier access to information and the revival of active communication attitudes triggered by the Net. At the same time, many problems are cropping up in this altered situation (ethical concerns, new patterns of behaviour and communication, the redefinition of the boundary between public and private, legal protection of both spheres, etc.) Copyright law, data protection, the right to information, and an entire

18. There is a possibility for development focused on meeting the communication and cultural needs of different social groups in a more targeted, personalised way, which includes more differentiated consumption of culture. There also might be new, more creative cultural configurations relying on consumer activeness.

range of rights to private sphere and to privacy have to be redefined and re-regulated along international dimensions.

The appearance of digital culture, accessible over the Net and organised in an integrated communication system, raises numerous theoretical and practical concerns. The Net is making a strong contribution to the de-materialisation of culture. With digital storage and access, the entire body of culture might be conceived as a single multimedia text. The concept of a finished work has also changed. A work on the Net is open and defenceless in face of any alteration. Anyone can rewrite, repaint, retouch, or use any text, discourse or work of art that up till now has been considered finished and signed. The result is that any multi-media "text" becomes a unit of inter-textual space describable in categories of historical events, which can continuously give rise to problems of authorship. So far, there has always been a clear distinction between writer (author) and user or interpreter (commentator) in the written, printed and even in the electronic communication world. This difference fades with the freedom of access brought about by digital technology.¹⁹

Hypertext structure will increasingly characterise works of culture, texts and discourse, as a labyrinth-like structure incorporating references and borrowed "texts". The internal structure of texts will become increasingly complex and intricate. There also will be a fundamental change in the concept of context, and in the concept of the broad-based linguistic environment which provides the frame of reference for the various texts and discourses (Heller & Rényi 1996). The non-linear structure will become dominant, promoting activeness on the part of the recipient, since there will be no specific ways to navigate in the texts. The result will be the formation of new strategies of acquisition of knowledge.

New information and communication technologies are likely to transform communication opportunities and habits, and to alter the public sphere. Although there are signs of change in many directions, the real results are still hard to judge. The present changes project a more participatory public sphere. The surge in the number of communication channels and in communication relations, and the chance

19. Anyone can download a text from Internet, rewrite it and upload it again as their own work. Opportunities and the technology for doing this were far fewer in earlier communication eras, though theoretically, the possibility has always existed. See: well-known and infamous cases related to plagiarism, or forgeries of paintings, etc.

for autonomously selectable modes of access and reception equally promote the evolution of a better informed, more active audience, operating with more reliable data. Civil society can become more powerful, and communication between various societal groups can grow, leading to a decline in segregation, exclusion and prejudice. Broad-based audiences will be able to participate in the elaboration of common interpretations of issues and the elaboration of consensus. People will have access to institutions over which civil control would hardly be conceivable without this open system of communication. Simply the fact that it will be easier and quicker to access information can increase the critique potential of civil society, and its opportunity to exert control over power and the institutions of power. In this way, one possible trend forecast by researchers is a more open, democratic society, with knowledgeable citizens who actively participate in decision-making.

But changes may work out the other way around. As the boundary between public and private erodes, significant public affairs might become totally mixed up with issues that, although they are of significant interest to audiences, are nevertheless, spill-overs from the private sphere. The entertainment function of the media might take the limelight from the active communication and information-gathering function (since there is no significant increase in leisure time, growing time constraints are experienced), or may reserve it for access by limited strata only, increasing societal gaps as a result. The growing need for competence may also reinforce this trend. There is no guarantee of a societally even, or anything approximating a just, distribution of the new competencies or of the unquestionably necessary higher levels of skill needed to become active users of the new communication tools, though this might be the key to reducing social differences.

The registration capacity of the new media also needs to be taken into account. With advances in ICT, the day-to-day actions of the citizen create a rising number of registrable personal imprints, which are recorded, saved, managed, classified and compiled into important databases. Once this information was a part of private life. The media did not have the tools to register it, but now the data is becoming available for both commercial and political purposes. While on the surface it would appear that the individual is enjoying expanded autonomy and freedom of choice, in reality, the controls are getting

tighter. At this time there is no effective protection against the registration capacities brought about by the new ICTs, and there is no civil control over the storage, dissemination or use of this information, which means that the boundaries of the private sphere are quite permeable and vulnerable.

THE FADING CONCEPT OF AN INDIVISIBLE PUBLIC AND THE THEORY OF A HIERARCHY OF PUBLIC SPHERES

As a result of the latest research on the public sphere, critiques of the Habermasian normative theory and experience from the changed communication sphere, a new representation of the public sphere seems to emerge. A growing number of researchers and theoreticians believe that the day of a nationally structured and territorially defined public sphere is over, and that the concept and structure of the public sphere are in a state of flux. What is evolving is a sharply fragmented and hierarchic public sphere framework, connected to neither territory nor nation. The altered media situation does not support the traditional ideal of the public sphere, the “republic of citizens” circumscribed by language and territorially defined criteria, which acts in the “public interest.” The concept of a uniform public sphere has given way to a mosaic, a hierarchy of overlapping public spheres of various size.²⁰

John Keane views the evolvement of different sized public spheres as a historical flow (Keane, 1995), with the Habermasian concept of a public sphere evolving in the first three phases. Keane sees this development eventually going into a state of profound crisis in which the one-time concept of the public sphere becomes untenable, and changes under pressure of latest developments.

20. The paradigm shift occurring with this communication theory is present in lay representation, too. Following interviews with active users in various communication venues, we discovered that the lay user also often feels that s/he is choosing among various levels of the public sphere, and sometimes shifting from one level to the next. E.g.: after listening to a newscast on national radio s/he moves on to an Internet forum, then takes advantage of ICQ for a limited access simultaneous discussion, sends an SMS, and writes an e-mail to a professional group or to a private contact, etc.

Keane distinguishes among three interlocked phases in the evolution, refinement and popularisation of the classic public sphere and related concepts.

- a) A significant role in the evolution of the concept was played by the struggle between an increasingly emancipated citizenry and Europe's despotic rulers. The public sphere became a weapon when fighting for the freedom of the press and various other public liberties. The normative ideal of the public sphere thus created was an opportunity for citizens to create an identity in the shadow of state powers. Keane agrees with Habermas in that the public sphere thus evolving rested on a Roman (and Greek) model. Its image of the future was of a world with no armies, violence, clericalism, or selfish powers. In this phase, the public sphere was republican and critical, resting upon the concepts of "public virtue" (England), and "opinion publique" (France). Its ideals were public spirit, rule of law, common government, and freedom of opinion. Its function was protection of the public interest from decisions made by the rulers in their own private interests.

- b) According to Keane, in phase two the public sphere struggled against the increasing power exerted by economic monopolies over production and consumption, as the modern capitalist economy grew increasingly influential and dynamic. In this phase the decisive goal was to protect areas of life that are not profit oriented from economic influences. Keane uses 20th century German development to illustrate the importance of protecting the public sphere, when various bodies used "public opinion" to further their own ends²¹. (Keane, 1984) Keane agrees with Arendt (1960) and Habermas (1962) that public life, which up till then had given the citizenry a chance to speak to one another and define the rules of co-existence, was lost in a public sphere eroded by economic interest and consumerism. In phase two of development the reading public which critically debated culture gave way to a culture-consuming mass audience.

21. Keane (1984) makes reference to Tönnies and Jaspers. In the work "Philosophy is for Everyman; A Short Course in Philosophical Thinking (1969), Jaspers defends the value of "unlimited communication," while in "Kritik der öffentlichen Meinung (1922) Tönnies warns that it is dangerous to deify public opinion in an era when organised interests are profiting from manipulation of the public.

- c) The first two phases involve problems of the territorially defined state power that is inaccessible to the citizenry, and of the interests of organised market capitalism. In phase three, the additional problem of public service appears alongside the other two categories. Keane disputes the views of Nicholas Garnham and other members of the Westminster school of communication research, which claim that the "public sphere," located between the government and the market, is a place for rational and universal policies that are distinct from both the government and the economy. They argue that this normatively functioning space is guaranteed by the public service media model, which relays and balances out government and corporate power, and which cannot be controlled by either profit maximisation or power maximisation. According to the theoreticians of the public service media, the present day evolution of these media has not completely followed the Habermasian ideals, but it has made it possible for all citizens to access haute culture, and has prevented the media industry from satisfying only some segments of demands. They claim that market based media reduce the range of topics that can be tackled in public. As a result, the number of institutions of public control declines and completely unequal societal power relations evolve. The culture-creation mechanisms of the media represent the dominant groups of society and in addition, use primarily home-country-based companies to produce consumer culture, depriving a subordinate audience with a peripheral identity of any opportunity to criticise the processes. This is why many theoreticians, including many who are outside the Westminster school of communication theory, believe it is important to protect the public service media and guarantee central financing for their public service activity through national taxes.

Keane recognises the advantages of the public service media and agrees that they offer a clear presentation of the limits of market rhetoric and practice, and that for half a century the concept of public service reduced media consumerism and prevented entertainment and hollowness from being pursued to extremes. Although concepts regarding a generally accessible, mixed-programme public service media have had to face serious technical and financial problems, the model has expanded the horizons of its citizens, and has maintained

a measure of public life. Different types of national regulation have allowed the introduction of a balanced amount of advertising, political access, newscasting, and entertainment. Keane recognises that the public media has legitimated the public appearance of the lay person, the use of the vernacular, and was able to portray certain of their private actions and lifestyles and preferred forms of entertainment. But he has sharp criticism for public service media views. He attacks the attempt to alloy a 17th or 18th century ideal with 20th century practice, when there is absolutely no proof that even at its height, the public media actually implemented the objectives and practices of a rational and universal policy. Keane says that researchers marching under the banner of public service completely ignore the fact that the public service media are not the only ones to retain public debate, which continues to exist in the commercial media, too. In his view, the current public media are fraught with serious problems, and therefore, it is a dangerous strategy to link the ideal of the public sphere to an institution in a state of crisis.

Keane stresses three basic factors when looking at the reason behind the public service media crisis:

- Centrally regulated, diminishing financing coming from subscription fees weakens prospects for a strong public media especially when facing critics who support deregulation, for whom freedom of the press means advertisements and market competition, and who would free private media owners from government supervision. At the same time, financing problems have made it impossible for the public service media to participate in the design and introduction of new technologies (teletext, satellite broadcasts, etc.), which have left them behind in the surge of telecom competition. All these factors have forced the public media into co-productions, self-privatisation, and other similar situations, which just feed arguments for deregulation.
- Existing public service media outlets have to face the problem of legitimacy, as well. The audience does not consider its standards of balance, quality and universality to be representative, though this is the argument used to defend and represent the public service media. Public media employees are in crisis because they have gradually recognised that public taste is fragmented, and they believe that it is not possible to satisfy the full range of

public opinion and public taste. In stiff competition, the public media players are beginning to operate like accredited representatives of the "public experience," which further reduces the legitimacy of the public media, makes it even less possible to define audience preferences, and leads to increasing usage of commercial media by the fragmented audience groups.

- Technological development has put an end to the argument that the public media have a natural monopoly within a given nation-state because of the limited broadcast spectrum. In today's multi-channel environment, the public media are competing with the private media. In the meantime, the metaphor of territory, deep at the root of public service, is also being questioned: active citizens of an integrated public sphere once lived in a specific territory of a sovereign nation-state, which belonged to a system of nation-states defined in a similar territorial way. This system, which once appeared stable, has dissolved under the influence of globalisation.

The arguments, which were once the basis for public service media functions in a parliamentary democracy, (the role they play in arousing and maintaining public life in a given area, their service to the entire nation, their creation of national units out of different groups, regions, classes, etc., their ability to offer opportunities for all to participate, and their relay of major national events and experiences, allowing all to share in them, which conveys a sense of belonging to the nation and the community), have weakened. The media also claimed an ability to allow the entire nation to speak to itself in the public sphere it offered, which also created cohesion and a common identity. These functions were the foundation for a broad-based representation of the media as one that was not only financed by the public, but was also committed to it.

Keane says this view of the public service media has become inadequate, particularly since the metaphor of space on which it rests is no longer valid. There are now network-based communication spaces that are no longer linked to real, physically, or geographically definable territories. The one-time ideal of a uniform public sphere and its republican-minded citizens in a territorially defined space debating the public good has faded. Instead, today's public life is "a complex mosaic of different sized, overlapping, and interconnected

public spheres” (Keane 1995: 8). Although these public spheres come about on different levels and sizes of nationhood and societies and by the means of different mediums, all are arenas of action guided by power and interest, and they also meet the other criteria of a public sphere.

This concept of the public sphere returns to an earlier model used in communication science, in which interpersonal communication and media communication were treated within a common theoretical framework (Winkin, 1996), considering that the only difference between the two was a matter of scale. Today’s “total turnaround”²² is due to a number of theoretical considerations²³. Treating an entire field of communication, ranging from direct face-to-face interactions on through the broadest scale media-relayed public sphere, within a single theoretical framework is supported by several fundamental theoretical considerations:

- One such consideration is the definition of the public sphere as an operative principle (Heller, Némédi & Rényi 1990, Heller & Rényi 1997, 2000). This principle guides a process of transformation in which the speakers execute selective and symbolic operations to turn issues of a non-public existence into a public topics. This process brings about acts of communication on various levels (public and non-public, interpersonal, media, etc.) through actions that continuously blend presentation and representation.
- The acts and activities of communication on various levels function as social organisers and social integrators in the establishment and maintenance of societal relationships, which, in the final analysis, constitutes society.
- An integrated theory makes it possible to investigate acts of communication on various levels using identical considerations and tools, and as a result, similarities and differences can be

22. The total turnaround is intended to indicate the return to a joint frame when treating interactions and mass media, instead of staying with the sub-categories into which they were divided in the 1960s. This turnaround has significantly changed perspectives, opened new vistas and offers opportunities for new theoretical considerations. (See, e.g.: Cardon-Heurtin-Lemieux, 1995)

23. In our own model of the public sphere, too, we gave preference to this broad framework (Heller, Némédi & Rényi 1990, Heller & Rényi 1996, 1997, 2000).

analysed and demonstrated systematically. Thus, the norms and strategies that went into the creation of the various acts of communication, the reception mechanisms, the interpretation of meaning, the interpretation of process, etc. can be handled within a uniform frame of reference.

Keane uses the following definition to describe public spheres emerging on various levels: "A public sphere is a particular type of spatial relationship between two or more people, usually connected²⁴ by a certain means of communication (television, radio, satellite, fax, telephone, etc.), in which non-violent controversies erupt, for a brief or more extended period of time, concerning the power relations operating within their given milieu of interaction and/or within the wider milieux of social and political structures within which the disputants are situated." (Keane 1995:8). Using that definition, Keane distinguishes among three abstract levels of the public sphere:

- *The micro-public sphere*: dozens to thousands of people, forming communication ties on sub-national level.
- *The mezzo-public sphere*: the communication field of millions of people within a nation-state.
- *The macro-public sphere*: communication opportunities for billions of people on a supra-national and global level.

While it is possible to describe the ideal types of the different public spheres in Keane's theorem, they never appear in pure form, nor are they, or can they be, completely isolated from one another. Although they are linked by networks and are interrelated and are overlapping, the different level public spheres are fragmented, and no integrative or other trend pulling towards a uniform public sphere will be able to overcome that. The various level public spheres are heterogeneous and differ in size.

Micro-public spheres: these are today's local equivalents of the old coffee-house, literary club, etc., communities, where people exchange opinions on local issues and matters of power. The micro-level is the fundamental level of social movements. Today, they are less con-

24. Usually connected: in other words, media tools are not always required; face-to-face communication situations also are included in the definition.

cerned with the issues of production and distribution, but tend to be more focused on how post-industrial societies generate and hold back information, and on how they create and maintain meanings. For instance, the women's movement is not only about the wrongs done to women, for it also questions dominant "male" codes and fights for recognition of the symbolic differences. These micro-levels of the public sphere operate like small networks with local connections. They are based on the principle of solidarity, individual need, and voluntary and occasional participation. They might be conceived of as tiny societal laboratories where new experience is born. They use a great deal of communication devices. They question and transform the dominant codes of day-to-day life, creating alternative experiences of interpersonal and space-time relationships. They are highly innovative regarding subjects, causes, and communication tools, as well as in their use of languages and codes.²⁵ Sometimes they also become visible in the broader public spheres (mezzo or macro). Their power lies in their latency. They *appear* to be private because they operate far from official public life and the media. The existence and operation of civil society is closely connected to the micro sphere.

The mezzo-public spheres are the best known and most often discussed type of public sphere. These public spheres are fields of social communication on power that bridge great distances and connect millions of people. Often their boundaries coincide with the borders of the nation-state, but they might be more limited (for instance the Basque public sphere), or even larger (German-speaking public sphere involving Germany, Austria, etc.²⁶) The traditional media, newspapers and much of the electronic media are within the mezzo level.

Mezzo-public spheres are quite constant, although they are shaped and influenced by micro-public spheres. The relations between the two spheres is no a zero sum game, partly because they feed on the tension between the two, and partly because the mezzo-public spheres need the micro-public spheres. Accumulated social prestige

25. Keane cites the micro-public sphere of videogames played by children, and there are many other examples including leisure centres, local civil organisations, and groups of people from various subcultures. The micro-public sphere creates everyday culture.

26. The common linguistic code can play a fundamental role in demarcating boundaries and in ensuring participation.

and the existing system of financing and distribution contribute to the maintenance of the mezzo-public spheres. Its survival is also promoted by the private media, which facilitate the debate on power. As the public media are increasingly influenced by the market, the private media are showing a parallel movement towards politicisation²⁷. As we have already seen, the blurring of the boundary between public and private is a typical consequence.

The sudden growth of *macro-public spheres* (global and regional) should be considered a consequence (unintended) of the international media concentration. In earlier periods, as we have seen, public sphere and social communication were organised within a national framework. The competition of the media market led to concentration, and the result was that large nations and large companies now have a far more extensive regional influence than in the past. A global media market came into existence, though the original intent did not involve creating an international audience. But, rapidly developing, decentralised industrial and commercial investments triggered a need for easily mobilisable professionals and devices, which soon shaped an international information and communications market with a high rate of return. In addition, the multinationals that came into being were quite able to side-step national regulation. All these factors contributed to the unintended consequence of bringing about an international audience. Global communication addressed to international audiences bears a new set of characteristics. International events appear before the macro-public with powerful symbolic force as they are relayed to a fictive international audience. (Dayan-Katz 1992) This generates new debates on a power that goes beyond the boundaries of the mezzo-public sphere, thus significantly changing the structure of the public sphere²⁸.

27. Examples of this were the appearance of Reagan and Berlusconi in the political arena, and in the mezzo-public sphere. A similar example might be the way the British tabloids focus on the private lives of the monarchs and political figures, etc.

28. The most typical representative of this phenomenon is CNN, and the way it selects and presents the portion of world events it considers worthy of broadcasting. Numerous examples might be cited. They include building up the Gorbachov-Reagan meeting into a media event, or the Falkland War and the Gulf War, with strong censorship in both cases and where at times the reporting consisted of events played out expressly for the media amidst strong media glorification. The message was not focused on the political happenings nearly as much as on glorifying the media for its live "warcast". The live broadcast of the student demonstration at Tienanmen Square was the first time a global media event

The introduction of new ICTs have led to a rapidly developing macro-public sphere. But, not only media developments have been generating the process, for economic flows also have supported globalism. As the multinationals continue to grow, commodities, production processes and management strata in charge of them are all becoming globalised. The subjective decline in distances between people, groups, places and spaces that result, are the outcome of stronger international economic and political relations and the globalisation of communication. Internet has become an important arena for the macro-public sphere, and its rapid spread is being promoted by economic actors interested in global development, as well as by the public powers providing government support. Internet communication is significantly changing traditional communication habits and increasing chances for, and the proportions of, human connections. As a result of Internet communication, characterised by its unlimited nature, informality, and global access, there has been a significant growth in the ratio of horizontal acts of communication; and the fabric of civil social organisation can become and is becoming stronger. Mobile communication opportunities including mobile access to Internet are offering active and increasingly interactive citizens the opportunity for continuous presence, full availability and on-line participation.

There has been extensive debate between theoretical and practical specialists on what representations to use to most accurately describe the changes. The "highway" metaphor has most recently given way to the metaphor of "surfing" on the Web, though others have tried to portray the operation of the public sphere with the "labyrinth" metaphor, where the reader, the recipient, travels her/his own labyrinth, choosing from among the crossroads and nods offered. Keane is an optimist regarding the opportunity for democratisation offered by the Net. In Keane's opinion Internet users are "Net citi-

took place with hundreds of millions of people participating, generating a general global debate on the issues of power and freedom. As a result, it contributed to shaping a supra-national public opposition. The demonstrating students recognised the significance of the public sphere and organised their protest with this in mind, to maximise their international recognition. But, the forces in power were also quick to learn. The violent military crackdown, the bloodbath that stamped out the student demonstration came when the cameras were off, when there was a break in the live broadcast. In this way, the broadcasting medium, CNN itself, became a participant in the events, because it influenced them.

zens" who discourse on power and principles in a new, virtual or imaginary community.

Keane defines the conditions for a public sphere along the following criteria:

- there must be symmetric, reciprocal relations between the speaking actors, where no group has a monopoly over the means of communication,
- the public sphere must not lead to uniformity: mechanisms of individualisation must be given incentives and diversification must be recognised,
- the public sphere must principally create and promote critical discourse, and control of participants or any form of registration cannot be part of its tasks.

According to Keane, the theory of the public sphere needs to be radically redefined. The most important implication is that the public sphere must not be bound to government protected public service media for either empirical or normative reasons. The theory of the public sphere must include the widest variety of public forums (newspapers, electronic media, networks, etc.). Researchers on the public sphere will have to conduct investigations to determine whether there is any long term modern trend in which public spheres infiltrate areas of life that until now have been protected from discourses on power. Similarly to Habermas and Foucault, Keane senses the process in which public discourses are entering areas of life that until now have not been public, have not been visible, and therefore are less regulated. The consequence of this infiltration is that there will no longer be areas of social and political life left out of discourses on the division of power. No subject will remain "natural." The concept of a public sphere based on a silent oikos and involving citizen participation centred around public topics will come to an end. As the mediated public sphere expands, private phenomena will also come under the effect of the negotiated controversy characteristic of the public spheres. The world of privacy will end. Keane postulates that the process of politicisation will do away with one-time boundaries between public (where power discourses are legitimate affairs of people in general) and private (where these debates are illegitimate in face of intimacy, individual choice, or the nature). The process clearly indicates the arbitrary nature of the traditional definition of private,

which makes it increasingly difficult to justify treating certain matters as private ones. In a paradox way, the expansion of the public sphere and the growing dominance of politics lead to the generation of a new type of political discourse on whether certain zones of political life should be re-defined as private.²⁹

Keane (1991) already presented the argument that a pluralist interpretation of the various communication forms constituting public life support a non-fundamentalist interpretation of democracy, making it possible for anyone or any group in a plural public sphere to express agreement or disagreement with the ideals or lifestyles of others. According to Keane, there are no supra-historical truths or ideals, so there is no pillar of support to use when deciding what type of public debate is desirable. The only normative rule that can be stated is that there are several public spheres competing within a healthy democracy, and none has a monopoly on debating the distribution of power. But it also can be assumed that a commercial public sphere will certainly reduce the integrity of the citizens.

The theory assuming that there are various levels of public spheres changes the concept of democracy, too. In the republican traditions of political thinking, it was believed that power was best controlled through debate within the framework of the territorially defined nation-state. According to the republican tradition, public-spirited citizens were best able to co-operate in an integrated, politically constructed space, which in the final analysis, was rooted in the physical place occupied by the state power. This concept can no longer be maintained because there is a steadily increasing number of public spheres that are no longer directly connected to any physical territory. The functioning of public life has been subordinated to a process of de-territorialisation. There is less and less connection be-

29. Public debates are frequent on the issue of protecting certain spheres of private life from the public, on limiting public visibility and the public's opportunity to discuss these matters. These areas include e.g. protection of private data, homosexual identities, or the identities of victims of violence or disasters. Protection of these areas is constructed as a public topic, and the debate on the issues is a typically public debate. In the meantime, public actors are also fighting to keep their bedrooms and their private affairs invisible, and to keep them out of public debates. E.g.: the debate that followed Diana's and Dodi Al-Fayed's accident on the responsibility of the paparazzi, and on the publication of photographs of the accident. In other words, the changes underway in the public sphere are closely connected to defining the boundary between public and private.

tween the common proximity concept of the citizens and the spaces in which they live their private lives (birth, marriage, home, etc.)

Keane makes reference to Dewey (1927), in which the latter already complains of the fragmentation of public life. By today the process is irreversible. There is no single public sphere; there are public spheres. Republicanism doesn't even notice how undemocratic the assumption of a single public sphere is, since it is based on the concepts dating from a time when the nation-state was being built. The fact that there are more than one public spheres existing simultaneously, increases the freedom of the citizen and makes it possible to exert control from several points of view simultaneously. The increased number of communication forums resulting from new ICTs can spur a growth in the public sphere, where well-informed and active participants in public spheres on various levels can freely and unrestrictedly exchange opinions, procure information, and contact one another through the numerous public and non-public communication forums. This complex structure makes it harder for anyone to usurp power because it facilitates better access, control and debate by those it affects. This new situation can result in a growing number of social debates on various levels between active, informed and responsible citizens (local, national, regional, and global citizens). Individual activeness can also increase, not only in the consumption of various communication and cultural genre, but also in their creation.³⁰ The new ICTs create new modes of generating knowledge. At the same time, with an increasingly complicated hierarchy of public forums, circumspection of the public sphere can become more difficult and the knowledge and experience required for technological mediation can reduce chances of everyone having identical or similar opportunities to participate in the increasingly large numbers of public spheres. At the same time, competition is growing not only in the

30. It is worth noting the individual and civil-social initiatives already visible and pointing in this direction. It is astonishing to see the world-wide communication activities of youngsters on the web – consider only the tremendous number of Harry Potter web-pages. There has been an increase in lay journalism, and the internal and outward-directed communication activity of small communities organised around common topics has become stronger in places where there is technological access. A research project aimed at investigating private and locally significant Web pages on the Net is promising some very interesting results. Mobile Internet access is further intensifying the process. The user is always online and remains in a state of participation everywhere, being continuously in touch. This means that there is never a state of isolation for any limited or broad, private or public community, not even temporarily.

field of ICTs, but in the vastly increased channels of content service providers. This trend will reinforce competition between free and unrestricted communication, communication established and controlled by the state with its tools of power, and content providers created and controlled by economic, commercial, and profit-oriented interests. The issue of (un)equal opportunity has to be raised in this area too, particularly in an period where there is still no valid regulation.

REFERENCES

- Angelusz, R. (1998): Az új kommunikációs technikák és a nyilvánosság. Világosság no. 4.
- Angelusz, R. (2000): A láthatóság görbe tükre. Budapest: Új Mandátum.
- Arendt, H. (1960): *Vita Activa: oder vom tätigen Leben*. Stuttgart: W. Kohlhammer.
- Boltanski, L. (1993): *La souffrance à distance*. Paris: Métailié.
- Bourdieu, P. (1987): *Choses dites*. Paris: Minuit.
- Bourdieu, P. (1996): *Sur la télévision*. Paris: Liber.
- Cardon, D., Heurtin, J.Ph., Lemieux, C. (1995): *Parler en public*. Politix, no. 31. 5–19.
- Castells, M. (1996–97): *The Information Age*. Oxford: Blackwell.
- Castells, M. (1989): *The Informational City*. Oxford: Blackwell.
- Dewey, J. (1927): *The Public and Its Problems*. New York: H. Holt and Co.
- Eco, U. (1962): *Opera aperta*. Milano: Bompiani.
- Eco, U. (1976): *A Theory of Semiotics*. Bloomington: Indiana University Press.
- Fiske, J. (1986): *Television Culture*. London: Routledge.
- Fiske, J. (1993): *Power Plays, Power Works*. London: Verso.
- Foucault, M. (1966): *Les mots et les choses*. Paris: Gallimard.
- Foucault, M. (1971): *L'ordre du discours*. Paris: Gallimard.
- Gumperz, J. J. (1962): Types of linguistic communities. *Anthropological Linguistics* no. 1. 28–40.
- Habermas, J. (1962): *Strukturwandel der Öffentlichkeit*. Frankfurt a. M.: Suhrkamp.
- Habermas, J. (1981): *Theorie des kommunikativen Handelns*. 1–2. Frankfurt a.M.: Suhrkamp.
- Heller M., Némédi, D.& Rényi, Á. (1990): Vázlat a nyilvánosság-fogalom értelmezéséhez. Tükör által homályosan. Szabó, M. (ed.) Budapest: MTA Társadalomtudományi Intézet 111–123.
- Heller, M. & Rényi, Á. (1996): A nyilvános kommunikáció szociológiai modellje. In: *Jelkép* no. 4. 3–21.
- Heller, M.& Rényi, Á. (1997): “Magánbűnök és közerkölcsök”. A “magán” és a “köz” ellentéte és a nyilvánosság problémája. Szövegvalóság. Szabó, M. (ed.). Budapest: Scientia Humana.

- Heller, M. (1996): Report from the Black Tunnel. The media-war in post-socialist Hungary. Andersen, M. B. (ed.): Media and Democracy. Oslo: Oslo University Press.
- Heller, M., Rényi, Á. (2000): A nyilvánosság kommunikáció-elméleti megközelítéseiről. Jelkép no. 1. 69–94.
- Horányi, Ö.: Az információs társadalom koncepciójától az információ kultúrája felé. <http://www.szignummedia.hu/04apr97/komm2.htm> .
- Innis, H. (1951): The Bias of Communication. Toronto: University of Toronto Press.
- Inglis, F. (1990): Media Theory. Oxford: Blackwell.
- Keane, J. (1984): Public Life and Late capitalism. Cambridge, New York: Cambridge University Press.
- Keane, J. (1991): The Media and Democracy. Cambridge: Polity Press.
- Keane, J. (1995): Structural Transformation of the Public Sphere. The Communication Review. No. 1. 1–22.
- Kumar, K. & Weintraub, J. (eds) (1999): Public and Private Thought and Practice. Perspectives on a Grand Dichotomy. Chicago: The University of Chicago Press.
- Kumar, K. (1995): From Post-Industrial to Post-Modern Society. New theories of the contemporary worlds. Oxford: Blackwell.
- Luhmann, N. (1971): Öffentliche Meinung. Politische Planung. Opladen: Westdeutscher Verlag
- Machlup, F. (1962): The Production and Distribution of Knowledge in the United States. Princeton: Princeton University Press.
- Maier, Ch. (ed.) (1987): Changing Boundaries of the Political. Essays on the Evolving Balance Between the State and Society, Public and Private in Europe. Cambridge, New York: Cambridge University Press.
- Masuda, Y. (1980): The Information Society as Post-Industrial Society. Tokyo: Institute for Information Society.
- McLuhan, M. (1962): The Gutenberg Galaxy. Toronto.
- McLuhan, M. (1964): Understanding Media. New York.
- Meyrowitz, J. (1986): No Sense of Place. New York, Oxford: Oxford University Press.
- Nadel, S. F. (1957): The Theory of Social Structure. London.
- Negroponce, N. (1995): Being Digital. London: Hodder and Stoughton.
- Noam, E. M. (1996): Media Concentration in the United States. Trends and Regulatory Responses. Communication and Strategies no. 4.
- Noelle-Neumann, E. (1991): Öffentliche Meinung. Frankfurt, Berlin: Ullstein.
- Paperman, P. (1992): Les émotions et l'espace public. Quaderni 18. Paris, 93–108.
- Porat, U. (1977): The Information Economy. Washington D.C.: Office of Telecommunications, U.S. Department of Commerce 77–12.
- Schlesinger, Ph. (1991): Media, State and Nation. London: Sage.
- Toffler, A. (1990): The Third Wave. New York: Collins.
- Webster, F. (1995): Theories of the Information Society. London New York: Routledge.

New Communication Technologies and the Public Sphere

RÓBERT ANGELUSZ

THE CHALLENGES OF ELECTRONIC COMMUNICATION

From cable television to portable television sets, from video recorders to the Internet, from fax to E-mail, new communication technologies have gradually become parts of our everyday life. With most of these we first came into contact at work, but some have spread and turned into personal user goods at an amazing speed, in spite of the lasting economic recession and reduction of real income. The diffusion of video recorders and portable telephones has exceeded probably even the most optimistic expectations, while the use of computers and the communication possibilities they can provide is already expanding among the upper levels of the social hierarchy.

In the developed Western societies, a few steps ahead in the spread of these technologies, dozens of books and essays deal with the new developments. Profound literature analyzes the emergence of Information Societies, influential reference books deal with the “communication revolution”, and some studies even talk of the chances of a renewal of democracy or the last hopes for democracy, depending on the world-view and disposition of the author.¹ The system of scientific institutions also tries to meet the challenges. In many countries

1. Among the most recent general works see for example the latest books by Frank Webster (1995) or Manuel Castells (1996). Among the reference books on mass communication Denis McQuail (1994) also pays increasing attention to the most important issues in relation to the information society and new electronic media.

around the world research institutes and university departments are established which aim to study the spread of computers and telecommunication technologies as well as the cultural and social consequences evoked by these new forms of communication.

What are the possibilities, prospects and barriers for the spread of the new communication technologies? Will the exponential growth of computer technologies continue or will the process of spreading slow down as it reaches classes whose financial and cultural resources are more limited? How do the ownership relations of communication systems change with the development of computer technologies? In what way will the changes affect the future of traditional mass communication? Has the era of mass communication really come to an end? Do the new communication technologies influence the structure, the power relations and the stratification of society? Will sharp dividing lines separate the computer generation from generations that have been socialized in the era of traditional mass communication? To what extent will computer-mediated communication become the domain of entertainment and political and cultural communication? Altogether, how does the further 'mechanization' of our life, the computerization of major parts of communication, affect our existence, our time schedules, our health and our social vitality?

There is hardly any limit to these types of questions, just as a whole series of problems arises concerning the traditional concepts of communication theory. Can one maintain the concept of mass communication or even the concept of communication, or do they need revision, since in certain features these concepts reflect views formed under the dominance of mass communication. To what extent can we talk about a new type of communication and does the shift in communication processes justify the formulation of new communication models? Can we discern phenomena whose exact description and interpretation would require the introduction of new communication concepts? In Hungary communication research has hardly dealt with these questions so far², even though the opportunity to analyze these large-scale processes 'in statu nascendi' in itself already justifies careful study, which would only be facilitated by the relative openness of these technologies. The cogent views that stress the deter-

2. Since the book issued by the former Hungarian Mass Communication Research Centre studies on the social consequences of the new communication technologies have appeared only sporadically. See Fritz, T. (ed.), *Kommunikációs jövőképek*. Budapest: MRT TK, 1988.

minism of new communication technologies and their social structure transforming characteristics pay less attention to the strong determining role played by the system of social and cultural conditions or to the alternative possibilities residing in the new technologies. Among the different communication schools the 'uses and gratification' approach could offer useful notions, which emphasize the active role of social conditions by underlining the aspects of needs and utilization³. This view not only makes the initial failure of inventions which proved successful later but were 'immature' earlier under different social circumstances understandable, but can also contribute to the explanation of a stratum-specific reception of various novelties. Technical inventions are followed by the social discovery of new means. The model-making role, persistence and, if necessary, co-operative behaviour of the first users can be important factors with regard to the cultural institutionalization of new communication technologies.

Considering the tardiness and negligence of the social-scientific reception of these issues in Hungary, my present study can naturally only have limited aims. I will therefore only deal with those consequences of the new technologies that could influence the structure of the public sphere. An attempt to discuss or clarify other questions and concepts will be made only if this seems to be indispensable from the point of view of my analysis. First of all I will outline those processes that started with the operation of the first generation of the new technologies and can already point to certain tendencies.

FRAGMENTATION OF THE PUBLIC

Traditional television broadcasting has created the concentration of the public, a focusing of attention to particular messages to an extent never seen before. Even unusual natural spectacles which are visible for everybody, celestial phenomena like a solar eclipse, were unlikely to attract so much attention that the great majority, 80 or 90 percent, of the population of a country would concentrate on one common experience. Traditional mass communication has proved capable of concentrating attention to such an extent, with a certain periodicity and

3. On this approach see E. Katz, I.G. Blumler and Gurevitch: "Utilization of Mass Communication by the Individual." In: I.G. Blumler and E. Katz, *The Uses of Mass Communication*. Beverly Hills: Sage, 1974.

on a large scale. Irrespective of one's favourable or negative attitudes towards television, considering the complexity, the density and the risk-level of modern societies, one can hardly question the importance of the fact that society is able to establish contact with almost the entire public and deliver certain messages within a relatively short period of time. By constructing and moulding common experiences in a highly differentiated society which spans all kinds of statuses and life-worlds, this intense focusing of attention has created conditions which make it possible to compare - broadly speaking - the world to a global village.⁴

The significance of the focused experience is only partly formed by the fact that virtually everybody does indeed see the same thing; the point is rather that we know or can assume with considerable certainty that masses of people share the observation. This shared experience, even when it is based upon secondary knowledge, can provide a 'common topic' for people from different social backgrounds and cognitive circumstances. Luhmann regards the situations when "one tries to find a topic for a person" in order to start a conversation as one of the typical communication dilemmas of the modern world.⁵ Through its mass production of 'second-hand experiences' that can offer common topics for people belonging to different social groups, mass communication contributes greatly to the maintenance of the highly fragile social integration of modern societies.

This concentrating, attention-focusing potential of mass communication is undoubtedly on the decrease. The new communication technologies have almost without exception an effect in the direction of decentralization. The limitedness of communication channels has been replaced by an abundance never seen before. People can choose from an ever broadening collection of channels. Video recorders make it possible to record a program while watching something else simultaneously, to postpone reception and fit various programs broadcasted at inconvenient times smoothly into the daily or weekly schedule. Especially more consumption-minded viewers suffer from an abundance-induced confusion: the huge supply of mass-communication channels and recorded programs certainly makes it rather difficult for them to make a choice.

4. Cp. M. McLuhan, *Understanding Media. The Extensions of Man*. New York: McGraw Hill, 1964.

5. N. Luhmann, "Öffentliche Meinung". In: *Politische Planung*. Opladen: Westdeutscher Verlag, 1971, p.22.

At some level the process of decentralization undoubtedly enhances the element of competition. The monopolisation of attention has been limited: various communication companies, institutions, genres and programs compete for the public, since advertisers pay according to the size of the public. Commercial television increasingly overshadows public broadcasting, and entertainment pushes politics into the background.⁶ Although in many countries the amount of time spent on watching television increases, partly because of the varied supply of entertainment, it cannot impede the process of fragmentation of the public. Data published recently by Eli M. Noam impressively show the rate of decentralization.⁷ In his analysis of media concentration the author distinguishes three stages in the era of mass communication: the periods of limited mass communication, multi-channel media and cyber-media. Compared to the previous period, the major television companies have lost significant parts of their audience in the present stage of multi-channel media. While ABC, NBC and CBC reached 92 per cent of the public in the previous traditional period, in 1996 the three major companies could count on just 52 per cent of the public.

In spite of the trends described above the question arises whether the extent of decentralization is appropriately characterized by the increase in the number of channels and the resulting fragmentation. The transformations related to the fragmentation of the public can be explained together with the developments on the production and media market side. The expansion of huge media empires that often involve a whole range of branches has continued in the multi-media era. Ongoing processes of concentration in the field of media and message production render the picture much more ambiguous. For lack of proper dynamic content analysis covering the entire message system, we cannot be sure what is more characteristic considering the process as a whole: that one can watch largely the same thing on a lot of channels now or the fact that with the increase in number of channels more audience-specific message systems have emerged, pointing in the direction of "polyphony".

6. E.S. Herman, "The Externalities Effects of Commercial and Public Broadcasting." In: K. Nordenstreng and H. Schiller (eds.), *Beyond National Sovereignty: International Communication in the 1990s*. New Jersey: Norwood, 1993

7. E.M. Noam, "Media Concentration in the United States. Trends and Regulatory Responses." *Communication and Strategies*, 1996/4.

We come across similar difficulties in answering a question more directly related to our issue, namely how the changes under discussion affect the formation of public opinion and the pluralism of opinions appearing in mass communication. Researchers studying the phenomena of concentration have drawn attention to the freedom-limiting and pluralism-reducing effect of excessive centralization.⁸ At first sight the assumption that the evolving decentralization processes lead to an increasing pluralization of opinions and to a more autonomous formation of public opinion seems evident. But the question deserves thorough consideration. The pluralization of opinions, their integrated nature or isolation, homogeneity or heterogeneity, also depends on the formation of the public in its entirety, on the determining structural factors of its framework, e.g. dominant stratification tendencies. Before trying to outline the possible processes in the structural changes of the public, it seems useful to examine one of the other consequences of the new computer-bound media technologies, the issue of interactivity in communication processes.

THE NEW MEDIA AND INTERACTIVITY

The adherents of democratic communication have always regarded the unilateral flow of information as the Achilles' heel of mass communication. A great deficiency of mass communication is that it does not allow for "two-way communication", a "reply" from the public, even the conditions for feedback are rather limited. Radio listeners or television viewers are permanently compelled to play the role of recipient. The activity of listeners or viewers is virtually confined to switching the set on and off, and to the fluctuating interest and selectivity with which they receive the programs.

The two-stage theory of communication seemingly loosens up the one-sided picture formed about the communication process.⁹ According to this theory, communication effects should not be interpreted linearly on the basis of the communicator-message-recipient scheme, as they depend on characteristics of the group context, personal com-

8. On the effects of the centralization processes see for example B. Bagdikjan, *The Media Monopoly*. Boston: Beacon Press, 1988.

9. See E. Katz and P.F. Lazarsfeld, *Personal Influence*. Glencoe: Free Press, 1955, or P.F. Lazarsfeld, B. Berelson and H. Gaudet, *The People's Choice*. New York: Columbia U.P., 1948.

munication and opinion leaders as well. However, notwithstanding the conversations and personal interactions induced by and related to a mass communication message, one can hardly speak of interactivity in relation to communicator and recipient. The decisive element, direct communicative participation is equally missing from discussion programs where public views are "represented" by mediators or others while viewers only follow the debate on television as recipients. Even though the multimedia era has brought about some shift in the relation between communicator and recipient, we cannot speak of a significant breakthrough. The advantages of this period - broadening choice for the viewers, individualization of mass communication, attempts from the side of television broadcasters to get viewers more actively involved - have not really changed the fixed role of the recipient as such. Growing viewer activity is in itself not identical with interactivity. Strictly speaking even those types of productions where viewers phone in or influence the outcome of the program with their votes, as for example in the program "Ön dönt" ("You decide") on Hungarian State Television, do not meet interactivity. Although by way of their votes viewers do exert influence on the story performed, the proceedings of the show and the possible alternatives always stay within the boundaries of a previously elaborated scenario, and the viewers are left out during the process of creation.

Computer-mediated communication has undoubtedly led to some changes in the field of interactivity. The novelty of network communication lies in the very fact that, by presenting a wide range of communication forms, it highly increases the degree of interactivity and the role it plays in the entire communication system. In principle the most diverse topics may appear on the network and the communication processes can meet a search for information as well as an urge to express opinions, a wish to find entertainment or a need for education. Besides the institutions yet to be invented, the supply repertoire offers a rather incredible range of services, from the use of libraries to thematic bibliographies, from data banks to various games, from purchase orders to banking transactions and interactive travels to fictitious towns.

Another feature of computer-mediated communication is that, except for personal verbal intercourse, it integrates nearly all the typical forms of communication. The Internet can establish contact between audiences of highly differing size: from a connection between two

persons, through several types of communication forms to various degrees of broad publicity. Interactivity can thus make its appearance in a wide range of topics and communication forms. The actual channels of real communication may expand significantly.

Besides the technical accessibility of particular groups or persons, the communicational "openness" of the participants on the net can improve the chances of establishing contact too. The mere presence on the web already assumes some kind of willingness to reply. The protocol is more open, the expected reception more favourable than when one tries to make contact with an unknown person on the telephone or in a letter. Hence communication via E-mail is much more extended – it can span a net which contains a larger ratio of weak ties – than the connection network of telephone conversations, which is more confined to stronger ties, more personal in character.

The fact that it is rather easy to meet people with a certain special interest or the same profession or hobbies on the web, may similarly increase the density of communicational relations in society. In modern societies, characterized by a highly developed division of labour and far-reaching specialisation, the possible combinations of ranges of interest may often come to resemble a jungle. Consequently, several obstacles can appear when one tries to establish contacts. Luhmann has referred to situations when people "try to find partners for a topic" as the other typical dilemma of communication.¹⁰ The communication culture created by the new communication technologies may significantly increase the emergence of this kind of contacts. Thus geographically dispersed people who live far from each another yet stand close as far as their interests are concerned may become members of interacting communities.

With the expansion of network communication the linear models of communication, although they do not lose their heuristic value and comparative validity, become somewhat relativized in view of the convergence models. The latter are intrinsically more related to a network-centered approach and emphasize the features of interactivity. In their convergence model Rogers and Kincaid use the notion of "participants" instead of the terms "communicators" and "recipients" and assume that the chances to arrive at common interpreta-

10. See Luhmann, *op.cit.*

11. E.E. Rogers and D.E. Kincaid, *Communication Networks; towards a New Paradigm for Research*. New York: Free Press, 1981.

tions improve in the course of an iteration process.¹¹ In the case of successful communication, i.e. when the communication is tending towards convergence, the ratio of messages understood in the same way increases, while dissenting interpretations decrease accordingly. In spite of increasing convergence the communication obviously still contains elements of uncertainty even in this case.¹² The conditions for achieving consensus are more favourable when communication processes are based on interactivity. Exactly because all recipients are positioned as equals, linear communication can often establish an illusory consensus. But while these pseudo-consensuses may occasionally prove efficient in the short or middle-long run, over a longer period they may lead to a rather tense atmosphere and give rise to conflicts.

Reference books on communication theory published before the arrival of the cyber-media era tried to place the types of personal and mass communication in sharp opposition to one another. With the gradual expansion of computer-mediated communication the dividing lines between these two types are gradually washed away, since communication on the network resembles personal communication in some features, while it is similar to mass communication on others. The criterion of interactivity relates it to personal communication, as both types are characterized by bi- or multi-lateral communication; the lack of complex social presence, on the other hand, emphasizes the similarities between computer-mediated communication and mass communication. A study by Jäckel has convincingly emphasized the importance of full physical presence by pointing out that deficiencies in direct perceptibility, for example limited visibility or audibility, reduces the full-fledgedness of communication to a great extent.¹³ The absence or restriction of meta-communicative signs definitely renders communication semantically more uncertain. According to Jäckel the social consequences of the deficiencies occurring in the case of electronic communication have not yet been researched appropriately and, as he adds, "so far there is no social psychology of electronic communication."¹⁴

12. The model contains the possibility of divergency as well. However, the exploration and systematization of sociological and social-psychological factors tending towards divergency has not been accomplished so far.

13. M. Jäckel, "Interaktion. Soziologische Anmerkungen zu einem Begriff." *Rundfunk und Fernsehen*, 1995.

14. See Jäckel, op. cit.

The lack of complex social presence that can be perceived so clearly in mass communication is not eliminated by computer-mediated communication, although it produces an illusion of presence by means of interactivity. The degree of personal presence appears to be such an important factor in regard to the possibilities for democratic communication that it seems useful to treat it as one of the determinant dimensions in the categorization of types of communication. Indicating the presence or absence of interactivity with the categories of uni-directionality and multi-directionality, a two-dimensional analysis results in the following scheme:

Type of communication	Interactivity	Complex social presence
Personal communication	+	+
Computer communication	+	-
Mass communication	-	-

The in many respects passive behaviour that characterizes the mass communication audience due to the lack of interactivity and complex social presence can easily be connected to the view on the narcotic functions of mass communication expressed by Lazarsfeld and Merton.¹⁵ In the absence of actual political participation, the representative style of the home-delivered politics, the dispersion and loneliness of the audience and most of all the technical limits to interactivity together contribute to the "illusion of presence". To what extent the 'medial' situation, created by the new technologies which could extend the attribute of interactivity in principle unlimitedly, can bring about growing activity in the field of political participation forms an important question. Does the lack of personal presence and the mechanical transmission of this type of communication not in itself mean the maintenance of the narcotic dysfunction? Would the great potential which is opening up secure due opportunity and im-

15. See P. Lazarsfeld and R.K. Merton, "Mass Communication, Popular Taste and Organized Social Action." In: Schramm, W. (ed.), *Mass Communications*. Urbana: University of Illinois Press, 1960.

pulses for a consolidation of the civil sphere and the development of more favourable conditions for the public in society?

BASIS COMMUNICATION AND DEFORMATIONS OF THE PUBLIC SPHERE

From the aspect of the development of political communication as a whole, perhaps the most important elementary phenomenon is formed by conversations of private persons among themselves, and among these the basis communication dealing with public issues while touching upon the boundaries of private life.¹⁶ Spontaneous communication of this kind is the basis of democracy, the breeding ground for the formation of public opinion. The processes of basis communication are characterized by vicinity, informality and interactivity, even though they may be based on very different factors, like proximity in social status, acquaintanceship or even the peculiarities of the situation. Personal or group talks dealing with an issue of public life can be included in the concept of basis communication in so far as the participants in the communication more or less know each other and address their statements to each other, not to some broad anonymous audience. The private nature of basis communication is primarily based on the non-public form of the communication and the personal selection of addressees.¹⁷

From among personal communications, in addition to communication along strong ties, conversations between people connected through weak ties can also be included here, since the partners know each other in the latter case as well, and they address their messages not to the public at large but to each other. Though direct verbal interaction is the most natural medium of basis communication, private correspondence or telephone conversations also belong to the domain of basis communication in so far as they discuss issues of public life. In the case of those forms of group talks which take place in cafés, pubs, in various table companies or salons, the private nature of the

16. On the concept of basiscommunication see R. Geissler: *Mass Medien, Basiscommunication und Demokratie*. Tübingen: Mohr, 1973. In this study I use a narrower interpretation of the concept of basis communication than Geissler does in his book.

17. Following this approach, in the space divided by the common/personal and the public/non-public dimensions, basis communication is to be found in the square typified as non-public and common. On the communication space as mentioned here see M. Heller and Á. Rényi, "A nyilvános kommunikáció szociológiai modellje." *Jel-Kép*, 1996/4.

talks is ensured by the selection of partners and the surveyability and relatively closed character of the circle of participants. The same also holds in the case of 'new entrants' when their aptness is guaranteed by a regular member of the group or the invitation of the hostess. Although in some sense these may be regarded as borderline cases, we can also rank here the communicational situations in occasional gatherings analyzed by Gerhards and Neihardt and called 'encounters' after Goffman's wording, which occur under temporary conditions, at accidental meetings, for example in a train compartment, at the marketplace or in a queue.¹⁸ In situations like these political issues or actual questions may sometimes arise. Although here the participants do not or only superficially know each other, the private nature of their communication may be justified by the small size and surveyability of the group, the participation in the conversation and the estimation of the situation on the basis of personal impressions.

In spite of the diversity and graduality of transitional situations, speeches delivered at forum-like events should not be included in the concept of basis communication because, due to the large size of the public, its anonymity, the limited interactivity and the institutional nature of the communication, they transgress the boundaries of informal private talks and therefore rather belong to the processes of public communication.

The technical transmission may reduce the security and the personal nature of communication, but we have no reason to exclude computer-mediated communication automatically from the concept of basis communication. Several authors attach fairly great importance to the potentials of electronic communication and – joining Habermas' conception of public sphere – point to the resemblance between the newly developing electronic communities or agora and the early institutions of publicity, the salons and cafés.¹⁹ The limited expansion of the Internet, the low institutionalization of its use and the small number of empirical research on network communication provide only very limited opportunities for answering questions like, for example, what types of relations can develop in virtual space and in what aspects the developing 'electronic communities' will differ

18. See J. Gerhards und F. Neidhardt, *Strukturen und Funktionen modernen Öffentlichkeit*. Berlin: Wissenschaftszentrum Berlin für Sozialforschung, 1990.

19. See for example J.R. Höfflich, "Der Computer als 'Interaktives Massenmedium'. Zum Beitrag des Uses and Gratifications Approach bei der Untersuchung Computervermittelter Communication." *Publizistik*, 1994/4.

from real ones. At present it still seems uncertain to what extent and under what types of application the differences between electronic and personal communication will be washed away when these technologies become more widespread and common, and where the differences will remain significant. The experiences so far already question the notions that emphasize sharp dividing lines. In one of his studies specifically dedicated to electronic communities, Höfflich points out, for example, that a certain group of communication partners carries on personal and computer-mediated communication parallelly. Apart from solely electronic contacts frequently cases occur in which an existing relationship is supplemented by a computer connection. And the reverse also happens, when communication developing on the network constitutes the starting point for personal interactions.²⁰

Following the foregoing train of thoughts, we regard all forms of computer-mediated communication where private communication deals with issues of public life as basis communication. From E-mail to those forms of group communication where the number of entrants is limited and the exclusion of uninitiated participants and the general public secures the privacy of the communicating group, network communication can be considered as a part of basis communication.

The most obvious indicators of the current level of public sphere are the characteristics of the horizontal paths of basis communication, the expansiveness of communication processes, the density and the vitality of the network. The decreasing role of public issues in the contents of communication, the depoliticization of private conversations and the desolation of the field of horizontal communication can be largely explained by the detachment of the societal institutions of public sphere from basis communication.

Due to excessive state intervention or the dominance of information market forms, the societal institutions of public sphere can only convey the demands of private persons publicly or meet their needs for information to a limited extent. A deteriorating interaction between the level of basis communication and the institutions of publicity leads to the deformation of both spheres. The systems of public communication and basis communication become asymmetric with regard to their contents. The 'Up there they talk about something else

20. Cp. I.R. Höfflich, "Vom dispersen Publikum zu 'elektronischen Gemeinschaften'." *Rundfunk und Fernsehen*, 1995/5.

than down here' syndrome becomes typical. The visibility conditions deteriorate for both the official political top levels and the lower strata. Within the official institutions an increasing amount of communication takes place behind closed doors and the nascent arcane turn the essential questions of politics into puzzles. Viewed from above, the problem world of the lower strata becomes invisible due to the weakness of the basis communication. With the deterioration of the visibility conditions not only the suspected, reflexive secrets spread, but also the unknown, unreflected secrets that remain obscure.²¹ As a consequence of the coexistence of arcane and press freedom, scandals become almost natural concomitant phenomena of public sphere.

The technical features of mass communication intensify the asymmetries of the communication processes in society. On the vertical paths of communication pictures, sounds and printed words flow towards the population in quantities that can be expressed only in astronomical figures. The very amount of information, its heterogeneity and mosaic-like form, paradoxically enhances the difficulties of orientation. Messages proceeding upwards from below already appear in much weaker flows, and the lower we descend through the degrees of social stratification, the smaller the chance that the information will find its way upwards. On the horizontal paths of society the diffusion of political information is very low as well. The asymmetries in communication flows undoubtedly lead to the revival of certain symptoms of representative publicity.²² Politics turn into a spectacle that happens above the heads of the citizens, and the institutions of publicity do not ensure a connection back to basis communication.

21. On simple and reflexive secrets see A. Bellebaum, *Schweigen und Verschweigen. Bedeutungen und Erscheinungsvielfalt einer Kommunikationsform*. Opladen: Westdeutscher Verlag, 1992.

22. On the interpretation of representative publicity see J. Habermas, *A társadalmi nyilvánosság szerkezetváltozása*. Budapest: Gondolat, 1971.

THE NEW TECHNOLOGIES AND THE CHANCES FOR DEMOCRATIC COMMUNICATION

What kind of democratic potential do the new means offer to reduce the disorders of political communication, to mediate between basis communication and publicity, to establish a connection between the two? To what extent will different groups of private persons be able to make their needs public and present the information needed for it? Will one manage to support the basic democratic function of public communication, the improvement of social visibility and an increasing transparency of political life? As far as the current state of the developing processes enables us to consider the appearing chances at all, the trends that can be discerned at the moment seem to be rather ambivalent, but in certain fields they show the contours of democratic communication.

Computer-mediated communication can first of all further a more well-founded orientation. The main obstacles to better orientation – a shortage of available time, the lack of possibilities to directly approach major events, the greater number and complicate nature of issues concerning the citizens – seem to confront the general public with sheer insoluble difficulties today as well.²³ Among these shortage of time seems to be the obstacle hardest to overcome. The hopes attached to the increase of leisure time have come true only to a very small extent, and people spend only a fraction of their free time on getting informed. In some sense the computer even enhances the difficulties of dividing one's time, as it offers a broader supply of gratifications. It is indisputable, however, that the new technologies can greatly increase the opportunities to check or correct information and to obtain the most important background information. The required databases, libraries, search systems and different information sources become accessible from one's desk by pressing a few keys. With the help of a computer one can have recourse to the advice of a variety of partners, and the exchange of opinions on the network affords possibilities of co-operative control. In some cases uncertainties caused by the inaccessibility of events can be reduced by contacting people in the vicinity of the scene, perhaps even witnesses. This extraordinary potential for control will probably have great impact on

23. W. Lippmann's famous book published in the early twenties already drew attention to these factors. See W. Lippmann, *Public Opinion*. New York: Free Press, 1922.

the whole style of journalism and may force the official communicators to increasing objectivity and balanced reporting.

The emergence of private and public fora developing on the network may – especially when the number of participants on the web reaches a critical mass – bring about important changes in checking news and in the formation of well-founded, informed opinions. Even fora which regard the establishment of well-balanced, accurate information provision as their basic mission may appear. Such institutions would be within a hair's-breadth from possible fora of laymen journalism or even the rise of non-professional "magistrature". The livening up of the "for many, with many" type of communication may result in the consolidation of the horizontal paths and the civil sphere. Various groups and electronic communities may get in touch with one another both in a private and in a public way, may discuss and synchronize their points of views and could present a united front in relation to certain events. Thus mass communication media do not simply come into contact with dispersed public groups isolated from one another, but with the networks of the recipients, which can also approach a different large fora of publicity more easily.

It is hard to anticipate today to what extent the new technologies will transform the means of traditional mass communication. It is also uncertain what kind of division of labour will develop between the media or what kind of ousting effects will prevail among the particular organs with regard to entertainment, culture and political communication. The possibility of interactivity and the emergence of electronic communities of citizens involved in public issues but dispersed earlier, by all means provide opportunities for basis communication to become more vivid and get closer to the institutions of public sphere.

From the point of view of the safety and effectiveness of communication it is necessary to establish a clear separation between private and public fora, while in some instances their combined application may also be required. The assurance of maximum guarantees for private communication forms the basis for a proper functioning of public communication. According to the logic of democratic principles, in the relation of private affairs to public affairs the priority of private affairs is the decisive element. Since public affairs always touch upon the boundaries and contents of private life, in principle state affairs concern private persons as well. This relation cannot be reversed

without the violation of democratic principles. State institutions and the fora of publicity cannot cross the borders of closed private affairs. Without broadly based guarantees of privacy public life does not function. Encroachments from the side of the authorities or journalists can shake public communication to its very foundations.

Concerning the application of computer-mediated communication and the assertion of its interactive potential, the inviolability of privacy is of extreme importance. With the help of exactly these technologies, a whole range of different offices and state institutions have easily accessible data on private persons at their disposal. These data covering several aspects of private life – income, bank accounts, tax payments, travels abroad, health – can, when integrated, significantly threaten the autonomy of people as private persons. Only the further development of legal institutions serving the protection of the private sphere and the operation of self-defence reflexes of private persons can sufficiently safeguard security in view of this threat. Certain initiatives can already be observed. Computer experts, for example, have developed ingenious “cryptographic technologies”, with the help of which the communication partners themselves can make sure that their notes, private messages, etcetera, do not fall into the hands of outsiders.²⁴

With the new means of interactivity the elements of political participation may be strengthened as well. Especially the character of the periods preceding elections may undergo a transformation. Presumably the knowledge about the different parties will also become increasingly well-founded. The possibilities to check and compare the programs of the parties with each other and with previous programs will also increase. In all their subjectivity most political parties in Hungary have already made their appearance on the Internet, used only to a very small extent there as yet. With the expansion of computer-mediated communication the parties can expect an increase of buoyant communicational initiatives directed towards them from their potential followers and enemies, especially during election campaigns. Computer communication may also bring about new developments in the relations between supporters of the same or other par-

24. On public-key cryptography see *Pretty Good Privacy* by P. Zimmermann, published in the Hungarian Electronic Library (Magyar Elektronikus Könyvtár). On the possibilities of cryptography see also D. Chaum, “Achieving Electronic Privacy”. *Scientific American* (August 1992).

ties. Circles of potential sympathizers scattered along large areas in different towns may get in touch with one another and with the respective centres of their parties. The features of campaigns may be transformed in many respects. The network itself may become the arena of electoral competition and in this area a real possibility arises for citizens and electronic communities to exercise interactivity. The nature of the medium and its written form offer fewer opportunities to exercise direct emotional influence and for the "homo publicus" to manifest his verbal superiority, thus on the network communication may be diverted to a genre which is more favourable for the people participating and more objective.

Other components of the elections may undergo a transformation, too. The institution of campaign silence and its effects will probably change. As the temporary suspension of communication does not necessarily work in private electronic communities, the campaign silence may strengthen the role of the network and basis communication in the outcome of the elections. These trends may modify the perception of the parties that is formed at the electoral bases and influence the operation of the "set-of-carriages effect". Although, because of the size and complexity of modern societies, I do not believe in the future perspective of electronic democracies as outlined by Masuda, certain elements of direct democracy may definitely gain ground.²⁵

As far as the examination of the political effects of computer-mediated communication is concerned, one of the most important questions deals with the rate of expansion of the new technologies. It has become clear already that the use of the Internet does not follow the same pattern as the spread of television, which became a natural appliance in almost every household in the United States and most European countries within ten or fifteen years after the beginning of public broadcasts. The temptation of the computer is not so universal as that of the television was, which through the attraction of live pictures, the tradition of the movies and the captivating passivity of its reception held out promises of an easy form of recreation and entertainment. The diffusion of the Internet is an even slower process still than that of the computer.

25. See Y. Masuda: "The Information Society as Post-Industrial Society." *World Futures Society*. Washington DC, 1983.

The expansion of the new communication technologies is also hindered by the costs of their acquisition and application. Modern communication research does on the whole not pay enough attention to the role these factors play.²⁶ Due to the shortage of available resources and the established rank-order in which demands are to be met, the possibility to purchase a computer does in many cases not even enter one's mind. Apart from this, operating on the Internet presupposes types of knowledge, skills and needs that people possess in rather highly divergent degrees. The strata-specific differences in technical skills, language codes and communication needs make the value of computer communication significantly relative to the various levels.

Regarding the development of diffusion that is to be expected, Castell's assessment seems to be the most moderate one. According to Castell "...CMC is not a general medium of communication and will not be so in the foreseeable future. While its use expands at the phenomenal rates it will exclude for a long time the large majority of humankind, unlike television and other mass media."²⁷ The differences in expansion are observable not only internationally, between countries, there are significant stratum-specific differences within each society as well. According to researches carried out in the United States, the use of the Internet has reached a high density first of all among groups with a high level of education and relatively considerable income. A break-down by occupation also yields important differences: people working in the sphere of technology, education or commerce make most use of the potential of electronic communication. Members of the younger generations and males are over-represented among the

26. Earlier authors like for example W. Sombart still attached greater importance to this issue. At least this is suggested by the fact that he made a distinction between the open and closed forms of indirect (non-verbal) communication when systemizing the types of public communication. Since the closed forms go with certain costs, he separated them from the free means of communication. See W. Sombart, *Der Moderne Kapitalismus*. München und Leipzig: Verlag von Duncker Humblot., 1921.

27. M. Castells, *The Rise of Network Societies*. Oxford: Blackwell, 1996, p. 358.

28. Due to the comparatively limited expansion of the Internet in Hungary it is not possible yet to carry out a detailed examination of the domestic trends of its spread. Even at the present level of expansion it is, however, clearly perceivable that the younger age groups and the professionals classes play an outstanding role in the diffusion of the Internet in Hungary. See R. Angelusz, R. Tardos, *Médiahasználat vagy médiafogyasztás? A televíziózás egy új empirikus tipológiája*. (manuscript)

29. See Castells, op. cit., p. 359.

users of the Internet.²⁸ It is further important to note that computer-mediated communication is at present most often linked to the work environment.²⁹ German researchers draw attention to characteristics of utilization which diverge from this in some aspects. Extreme right-wing groups ousted from the traditional channels of publicity try to use the opportunities offered by electronic communication for political purposes.³⁰

Considering the basic tendencies of the expansion of the Internet, it is likely that in the utilization of the technologies significant differences develop which will prevail in the long run as well, and will thus enhance already existing inequalities in the fields of knowledge and communication. The expansion of computer communication will probably verify the hypothesis formed about the growing knowledge gap, while regarding basis communication dividing lines resembling class borders may evolve along the social hierarchy.³¹

The accumulation of inequalities in knowledge and communication naturally hinder the development of the interactive potential of electronic communication, the comprehensive manifestation of basis communication, and the "reversal" of the asymmetrical processes of political communication. The patterns and limits of the expansion of the new technologies are, however, not differentiated to the extreme. The reception of technologies and the more balanced form of utilization among the younger generations may in the long run lead to a compensation of the disadvantageous processes. By building computer parks, teaching and training the necessary skills and routines and by promoting electronic communication among schools, the educational system can do a lot to eliminate inequalities and bring out the best of the interactive potential. The way political communication will evolve depends primarily on the respective size of the forces that have an interest in the limitation, or conversely, in the transformation and development of publicity and, on the battle they fight. The new technologies do not offer final "trump cards", but they do provide opportunities for the adherents of democratic communication.

Translators Erzsébet Kállay & Jannes Hartkamp

30. See for example, W. Vogelsank, L. Steinmetz und T.A. Wetzstein, "Öffentliche und verborgene Kommunikationen in Computernetzen" *Rundfunk und Fernsehen*, 1995/4.

31. On the knowledge-gap hypothesis see P.J. Tichenor, G.A. Donohue and C.N.Olien, "Mass Media and the Differential Growth in Knowledge." *Public Opinion Quarterly* 344 (1970).

REFERENCES

- Angelusz, R., Tardos, R.: Médiahasználat vagy médiafogyasztás? A televíziózás egy új empirikus tipológiája (manuscript).
- Bagdikjan, B. (1988): *The Media Monopoly*. Boston: Beacon Press..
- Bellebaum, A.(1992): *Schweigen und Verschweigen. Bedeutungen und Erscheinungsvielfalt einer Kommunikationsform*. Opladen: Westdeutscher Verlag.
- Castells, M. (1996): *The Rise of Network Societies*. Oxford: Blackwell.
- Chaum, D.(1992): 'Achieving Electronic Privacy'. *Scientific American* (August 1992).
- Fritz, T. (ed.) (1988): *Kommunikációs jövőképek*. Budapest: MRT TK.
- Geissler, R.(1973): *Mass Medien, Basiscommunication und Demokratie*.Tübingen: Mohr
- Gerhards, J. und Neihardt, F.(1990):*Strukturen und Funktionen modernen Öffentlichkeit*. Berlin: Wissenschaftszentrum Berlin für Sozialforschung,
- Habermas, J. (1971): *A társadalmi nyilvánosság szerkezetváltozása*.Budapest: Gondolat.
- Heller M., Rényi Á.: 'A nyilvános kommunikáció szociológiai modellje.' *Jelkép*, 1996/4.
- Herman, E. S.(1993): 'The Externalities Effects of Commercial and Public Broadcasting.' In: K. Nordenstreng and H. Schiller (eds.), *Beyond National Sovereignty: International Communication in the 1990s*. New Jersey: Norwood.
- Höfflich, J.R.(1994): 'Der Computer als "Interaktives Massenmedium". Zum Beitrag des Uses and Gratifications Approach bei der Untersuchung Computer-vermittelter Communication.' *Publizistik*, 1994/4.
- Höfflich, J. R. (1995): 'Vom dispersen Publikum zu "elektronischen Gemeinschaften" '. *Rundfunk und Fernsehen*, 1995/5.
- Jäckel, M. (1995): 'Interaktion. Soziologische Ammerkungen zu einem Begriff.' *Rundfunk und Fernsehen*.
- Katz, E. and Lazarsfeld, P.F. (1955) *Personal Influence*. Glencoe: Free Press.
- Katz, E., Blumer, I.G. and Gurevitch (1974): 'Utilization of Mass Communication by the Individual.' In: I.G. Blumer and E. Katz (eds.), *The Uses of Mass Communication*. Beverly Hills: Sage.
- Lazarsfeld, P.F., Berelson, B. and Gaudet, H.(1948): *The People's Choice*. New York: Columbia U.P.
- Lazarsfeld, P. and Merton, R. K.(1960): 'Mass Communication, Popular Taste and Organized Social Action.' In: Schramm, W.(ed.), *Mass Communications*. Urbana: University of Illinois Press.
- Lippmann, W. (1922): *Public Opinion*. New York: Free Press.
- Luhmann, N.(1971): 'Öffentliche Meinung'. In: *Politische Planung*. Opladen: Westdeutscher Verlag, 1971.

- Masuda, Y. (1983): 'The Information Society as Post-Industrial Society.' World Futures Society. Washington DC.
- McLuhan, M. (1964): *Understanding Media. The Extensions of Man.* New York: McGraw Hill.
- McQuail, D. M. (1994): *Mass Communication Theory.* London: Sage.
- Noam, E. M.: 'Media Concentration in the United States. Trends and Regulatory Responses.' *Communication and Strategies*, 1996/4.
- Rogers, E. E. and Kincaid, D. E. (1981): *Communication Networks; towards a New Paradigm for Research.* New York: Free Press, 1981.
- Sombart, W. (1921): *Der Moderne Kapitalismus.* München und Leipzig: Verlag von Duncker Humblot.
- Tichenor, P. J., Donohue, G. A. and Olien, C. N. (1970): 'Mass Media and the Differential Growth in Knowledge.' *Public Opinion Quarterly* 344.
- Vogelsank, W., Steinmetz, L. und Wetzstein, T. A. (1995): 'Öffentliche und verborgene Kommunikationen in Computernetzen.' *Rundfunk und Fernsehen*, 1995/4.
- Webster, F. (1995): *Theories of the Information.* London: Routledge, 1995.
- Zimmermann, P.: *Pretty Good Privacy.* Magyar Elektronikus Kézikönyvtár (Hungarian Electronic Library).

European Perspectives on Lifelong Learning Environments in the Information Society

EERO PANTZAR

For the past ten years lifelong learning has been – again – the most central theme in European discussions on education. Most frequently, it has appeared in various connections of educational policy. This may be considered rather strange, due to the fact that lifelong learning (from the point of view of learning theory) has, basically, not much to do with educational politics. At most, the issue could be as to how educational policies can serve various lifelong learning efforts.

Regarding the content of the present debate, a significant feature is that lifelong learning has been connected to formal education or, at least, to organised and intentional studies. This viewpoint was also typical of the discussions on lifelong education (or permanent education), in the 1970s. I cannot but wonder at the oblivion or depreciation of the role of informal learning environments, for example. It seems inevitable that even fewer total solution models, organisations or education programmes can be provided in the present, to meet all the lifelong learning challenges, than in the past. As I see it the significance is in the individuals' independent knowledge acquisition abilities and skills to reconstruct information obtained from informal learning environments and that accumulated through random learning situations into new learning. Combined with formal education, they can create adequate preconditions for meaningful lifelong learn-

ing. (Cf., for example, Kaiser 1991; Lampinen 1997; NIACE 1992; Watkins & Marsick 1992; Reichsmann 1995; Pantzar 1997).

THE IDEA OF LIFELONG LEARNING

For a long period, analysis of lifelong learning was mainly restricted to education philosophical activities, which was reflected, for example, by UNESCO's interpretations of the idea of lifelong education, as late as in the 1960s. However, an expanded viewpoint was represented by the *Foundations of Lifelong Education*, a comprehensive publication by Dave (1976), in which lifelong learning was subjected to highly versatile analysis. At that time, analysis was still detached from social political connections, which came to play a contributory role during the 1970s. (Council 1970; Lengrand 1970). This means that the idea of lifelong learning was, clearly, part of the training society thinking.

The present information society connection of the 1990s provides two alternative viewpoints to lifelong learning. The connection can be understood as a need for lifelong learning generated by the challenges arising from the surrounding information society, or as expanding lifelong learning opportunities made available through the information society's new means and methods. My personal view is that the information society offers increasing opportunities to meet the challenges of lifelong learning, including any 'traditional' challenges. Similarly, the information society will create new settings to meet the learning needs that are continuously created by life's many ever-present changes.

The viewpoints of lifelong education, continuing education and recurrent education, which were expressed in the 1970s and 1980s, seem to have remained specifications of past ideas in the 1990s. At least, the favoured trend is just to speak of lifelong learning, in almost all the connections where people previously tried to choose between the said terms. (Cf. Pantzar 1991; Dohmen 1996). To speak of lifelong learning in conjunction with each educational activity pursued during an individual's lifespan becomes problematic, especially due to the fact that the necessary definition of learning, which is required in terms of study, teaching, training and education, remains untackled or insufficient. From a pedagogic and learning theoretical viewpoint, these distinctions are indispensable. On the other hand, even education political terminology, for example, cannot be so inaccurate as,

when referring to the construction of educational solutions that promote lifelong study, one would speak of a lifelong learning system. In the same vein, one can criticise the habit introduced in working life education of referring to each and every flexible training and study model as lifelong learning.

Being EU's theme year of lifelong learning, 1996 was of special interest in Europe. EU's education policy proclamations and national education policy decisions gave the impression that a transfer had been made, or was being made, into an era of lifelong learning. Even if several policy decisions, like so may before, spoke widely of the citizens' need of versatile lifelong learning, one felt, however, that labour force quality, and the maintenance and development of competitiveness are still seen as the primary determinants for education and training needs. (European Commission 1994; Cochinaux & de Woot 1995; cf. Freyer 1997). In this respect, the past 30-year development from Unesco's "lifelong education" ideas through the Council of Europe's "permanent education" and OECD's "recurrent education" to the interpretations above, rather reflects the changes of societal settings and educational systems than a key detected at the end of a long road to solve the mystery of lifelong learning.

The original 1970s idea of developing a versatile personality seems to have been abandoned, to a large extent, as an essential lifelong learning objective. However, this is not always seen in education policy documents, for example. These texts often mention that an individual's life consists of a number of actions and various activities, some of which are necessary, others challenges encountered in various walks of life, and the rest personal choices made by the individual in question.

The awakening to the reality of lifelong learning during the 1990s has been largely supported by the challenges generated through swift changes in working life and by massive unemployment. This seems to shift the focus on the educational content needed by the individual as an employee. It is this narrow view that has probably contributed to the fact that the concepts of continuous education and lifelong learning have merged.

The impression of the current direction of lifelong learning that I have described above has been mainly supported by educational policy norm providing practises (even within the EU), by the practical decisions made and by the activities of working life interest groups as moulders of people's perceptions.

INFORMATION SOCIETY AND LIFELONG LEARNING

During the near past learning environments have not changed very much. This is true, even when assuming that life itself is the most important learning environment and that informal and incidental learning provide the majority of those information items and stimuli that contribute to learning. These are valid arguments, especially when analysing the history of learning. The framework has not changed much. Instead, marked changes have manifested themselves within the framework, in the form of quantitative and qualitative developments. Life as such is and will remain a learning environment but will keep on changing and providing new learning challenges. When trying to find comparison points for the current situation from a sufficient distance in the past, the change will be seen more clearly. The change of industrial structures, the development history of social communities, and the change of the socialisation process will provide an appropriate perspective for analysis. From the point of view of the history of mankind, the said developments are also connected with fairly young phenomena, such as the birth of a school system, formal education, current social communities, and industrialisation with its related structures.

Over the past few years, the discussion on changing learning environments has been contributed to by a many-faceted talk and analysis of the information society which has been considered essential for the breakthrough of lifelong learning. Most discussion participants and others who have expressed their opinions have said that a knowledge society (information society) has emerged and developed, mainly during the 1990s. This interpretation is based on the idea of the information and communication technologies' decisive contribution to societal change in terms of the fundamentally changed information and/or data communication, storage, retrieval and processing, compared with any previous developments.

Initially, the information society was discussed in a spirit that had a strong technological bias. That spirit never vanished but is now accompanied by a number of additional viewpoints. The said technological bias was most evident through the fact that information and communication technological infrastructures provided by society were heavily concentrated. I do not want to deny the fact that the vari-

ous services and opportunities provided by the information society would require certain structures as a basis. Of course, this structural basis is necessary but is not sufficient in itself as a condition for an information society to become a learning society.

In the early 1990s, the information society was discussed in a lively fashion. It has been believed that a world in the process of becoming networked, with all of its virtual elements and other communication possibilities, can generate new forms of social interaction and, naturally, unforeseen settings for learning. However, the experience of the past few years has confirmed the vision of many analysts since the very beginning of the information society debate. After all, it is a fact that the majority of people prefer living with their fixed habits, rather than seizing new, sometimes ostensible opportunities. The opposite can happen only after long consideration, if ever.

This can be called prudence, despite the fact that it has been clearly proven as conservatism or outdated behaviour in this connection. When constructing learning environments for an information society, either for the needs of formal basic education or for more individual non-formal lifelong study, we can rest assured that people's attitudes to new things will often be very reserved.

In the following, I shall resume dealing with the perceptions pertaining to the birth of an information society. Above, I have repeatedly stated that a knowledge society, and the information society alike, is regarded as a societal development stage that began in the immediate past and is currently in the process of development. It is, in fact, surprising how rarely one hears any of the arguments and criteria on which the notions of society's newly begun development are based. On the other hand, a variety of matters are referred to in these discussions. One of the most frequent arguments is the rapid increase of the so-called knowledge work (Mannermaa 1997; Central Statistical Office 1997). The weakness of this argument lies in the hazy definition of the knowledge work and professions. According to the most vague interpretation, almost any occupation contains various elements connected with information and data processing. In this respect, they can be regarded as information professions.

But does knowledge work really produce something new? Kit Sims Taylor, an American researcher, has analysed the matter and stated the following, among other things:

There is clearly a rosy scenario afoot: the knowledge sector – with much higher productivity than other sectors of the economy – will expand rapidly in terms of employment as well as output; as most workers become high-productivity knowledge workers our incomes will rise proportionately; best of all, this will be accomplished within the institutional structure of capitalism as we know it today. Unfortunately, this rosy scenario is based on five premises and four of these are incorrect.

The two most interesting incorrect premises are, firstly, that knowledge workers primarily create new knowledge, and secondly, that demand for knowledge work will grow in pace with the increased supply and rising productivity of knowledge workers. (Taylor 1998).

An excellent counterweight to the prevailing notion of an information society, and food for thought for the most industrious of analysts is provided by the model developed by Hungarian Szathmary and Britain's John Maynard Smith. This model examines biological evolution from the information viewpoint. The model developers' view is that evolution has progressed in jumps, in conjunction with which recognisable changes have taken place in the forms in which information has been presented, stored and transferred. In accordance with Maynard and Szathmary's theory, an information society was born when man learned how to make cave paintings and use hieroglyphs and cuneiform symbols for writing. Man's ability to store and transfer knowledge in forms other than by word of mouth and oral traditions has been stated in a number of other connections as the starting point for development towards an information society. (Sokala 1996).

Long before the present information society debate was launched, education professionals, especially in the field of adult education, had realised that society and life will change at an increasing rate, with requirements to complement the basic education acquired during childhood and adolescence. At that time, the theme was the training (schooling) society whose main principle manifested itself as the idea of continuing education during the 1970s. (Pantzar 1991). Many industrialised countries underwent an era of a vigorous rise in education policies which revealed the needs for lifelong study, primarily through analysing educational needs from a societal perspective. The UNESCO introduced lifelong education

ideas of the 1960s had been left far behind. So, what is a 1990s modern information society like, as a learning society, particularly from the point of view of lifelong learning? (van der Zee 1991; Raggat & Edwards & Small 1996).

With regard to the assessments of a learning society, the most crucial element is constituted by the definition of the idea of learning, which also specifies the frame of reference for any interpretation of lifelong learning. I am not going to express an exact definition in this connection. To provide a background and premise for thought, I just refer to the research by the Swede, Roger Säljö, who has analysed the notion of learning. According to Säljö, the narrowest interpretation sees learning as quantitative increase of information. According to the widest interpretation, learning is a process that helps interpret reality better. (Säljö 1976; cf. Csikszentmihalyi 1982 and Forrester & Payne & Ward 1995).

A critical point in the definition of learning has been the decision whether to see learning as a process or as a product. This decision is significant, for example, when assessing the nature of the information society as a learning society. Personally, I interpret learning both as a process and a product thereof. An essential element in this interpretation is seeing information/knowledge as a raw material for the said process. This means that I understand

learning to be a process in which the individual processes the information/knowledge acquired in various ways, producing new capabilities which emerge as enhanced skills, increased understanding, and an ability to interpret matters or approach things and phenomena in a new way..

Correspondingly, I see

lifelong learning as a lifelong continuum of the said process.

At present, the term learning is frequently used to refer to the process only. The prevailing constructivist idea of learning bases its theoretical elements on learning as a process. Therefore, the issue is how to act in order to learn. (Resnick 1989; Pantzar 1995). Information-technology-based learning environments are typical of the information society. The very constructivism has, to a certain extent, provided justification for the suitability of these environments. The interpretations of lifelong learning have also emphasised the learning

process. I claim that these interpretations have rather dealt with lifelong or continuous study than learning. This means that, in conjunction with the information society, people have spoken of the opportunities for study made available by the information society. As such, study does not guarantee learning, but can produce it, undoubtedly. Furthermore, as study is almost invariably intentional and often connected with formal or non-formal education, it is obvious that the interpretation of lifelong learning will remain restricted.

When examining the change or current appearance of lifelong learning, one must emphasise survival, the basic function of learning. Survival has been and continues to be the essence in the indispensability and expediency of learning. From the lifelong learning viewpoint, changes are mainly an expansion and diversification of the means to survive. At the dawn of humanity, survival was connected to the acquisition of nourishment and shelter, and to reproduction. During that period, learning was, in terms of lifelong learning rather limited, but absolutely necessary. Learning ensured survival more effectively, but not necessarily, while man's only environmental relationship was his relation to nature. At present, survival takes place within the constraints of a multi-faceted and multi-layered man-environment relationship. To survive in this setting also requires a great deal of learning, and learning of various types (Pantzar 1993a; Dohmen 1996). The development that has brought the idea of lifelong learning close to lifelong study is based on the fact that the need for intentional learning has increased rapidly. Regardless of this, the inherent lifelong nature of informal learning and various random learning forms have not lost their significance. Intentional learning needs are primarily supported by formal educational institutions, and increasingly by individuals' self-initiated intentional studies. As these are forming into processes with far reaching effects on people's life cycles, it has been natural to think that lifelong learning is a requirement expressed by the present period only.

Today, lifelong learning based survival is encountered in the realms of four man-environment relationships. These relationships are: man-nature, man-built (technological) environment, man-social communities, and man's relationship to himself. These relationships can also be analysed as inter-community relationships. (Pantzar 1993a). Considering the learning requirements created by these relationships, it is easy to understand the versatility of the required and

existing learning environments. Under these circumstances, lifelong learning can be learning, study, education, or training, depending on the point of view.

EUROPEAN INTERPRETATIONS ON LIFELONG LEARNING AND LEARNING ENVIRONMENTS OF INFORMATION SOCIETY

The empirical research data collected for the research on European interpretations of lifelong learning was mainly acquired using non-structured questionnaires which were sent to over 30 foreign experts of lifelong learning in 12 countries (all of them EU countries, with the exception of one). The respondents work in universities, chiefly in research and teaching duties..

To constitute the basic issue and premise, I requested the experts to define a number of concepts connected with the theme and to identify the essential differences between these concepts.

With regard to the idea of *lifelong learning*, I shall present the following summary:

1) The definitions of lifelong learning place a strong emphasis on the fact that learning takes place at all times and in all places.

“Lifelong experience based learning taking place in all life spheres, incl. formal education”.

2) Lifelong learning is not a system but an activity that is typical of man whose function is to survive as an individual and as a member of a community.

“Man is a biological system, unable not to learn”.

3) In conceptual interpretations, lifelong learning seems to be exclusively connected with the learning needs arising from the relationship between the individual and his or her environment

“To continue the learning process during the whole life, to improve and actualise knowledge, behaviour, skills, attitudes and concepts of life and society”.

Learning is understood so as a human activity, or as a process that changes preconditions for the process and/or its outcome. (Cf. Cropley 1980; Himmelstrup 1981; Gross 1982; Raivola 1996)

Lifelong education is seen, almost without exception, as an activity that supports lifelong learning.

“Lifelong education is planned education for individuals throughout life. The authorities and (private and official) organisations arrange and administrate lifelong education for people”.

“A system, which offers and facilitates lifelong learning”

It is interesting to observe that in cases where lifelong learning is seen as a process that also takes place or occurs, to a considerable degree, outside formal education, lifelong education is described as a system or as an activity organised by some other means. Even functional interpretations, which justify the need for lifelong education in particular, are found among the definitions produced. (Cf. Cropley 1980; Himmelstrup 1981; Knopper & Cropley 1991; Atchoarena 1995)

The function of education (including lifelong education) can be seen to be different from that of learning. As a lifelong intention education means continuous socialisation. With regard to learning, an individual always has much greater freedom to define the purpose. In many cases, lifelong education seems to be clad in a tidier robe of lifelong learning. Thus, the individual's societal adaptation to change, which is necessary, – in working life, communities, etc. – refers, in a way, to the individual's own intention or activity, and can be said to be for his or her own good.

“Lifelong learning” constitutes a wider concept than “lifelong education”. Thus, education is understood as an activity geared towards learning. Another shared feature applies to the intentional aspect of learning. Whereas “lifelong learning” is understood to stand for intentional learning, random learning and non-intentional learning, “lifelong education” has always been understood as an intentional activity.

When assessing the development of the lifelong learning concept, with conventional usage as the basis, it appears that the concept's interpretation has somehow changed over the period of the past 30 years. This has also been observed by the European experts who participated in the research. According to their interpretations, the changes have been of numerous types. One respondent group is of the

opinion that, primarily, a change has taken place in what is seen as the most important content in lifelong learning (studying). This is also reflected in the definition of the necessary lifelong learning criteria, and in redirecting the activities which support learning within the constraints of intentional education.

LIFE CYCLE AND LEARNING ENVIRONMENTS

One of the objectives of my research was to specify the role of learning environments and how this role has changed in lifelong learning. I asked the experts for detailed notions of learning environments outside work and working life, the reason being that the significance of learning in work environments has been recognised in wider European discussions. (Crawford 1994; Atchoarena 1995; Ojala 1995). On the other hand, the assessment of the conventional and modern media is pervasive. This is connected with the aforesaid viewpoints and emphasise place on the role of informal learning environments which support the individual's versatile development in lifelong learning. When the family, conventional classroom teaching, newspapers and periodicals, electronic mass media, the Internet/WWW and computer-aided teaching materials (e.g. CD-ROMs) were finally examined as learning environment cases, it is, naturally, justifiable to point out that the palette of learning environments in question is not perfect. To strengthen the lifelong learning aspect, I requested the respondents to evaluate the significance of the said learning environments at various stages of the life cycle. The stages were defined to cover early childhood (pre-school years), childhood, adolescence and adulthood. Adulthood was not subdivided, even if the post-career period, for example, could, justifiably, have formed a separate period for examination. A particular reason being that the population's age distribution is changing in the EU area. Talk of a greying Europe is very true in terms of the near future.

The experts evaluated the family to be the most significant early childhood learning environment. In early childhood, the position and role of any learning environment is best discernible. Only the electronic mass media is seen to have some importance as a learning environment, in addition to the family. The influence of various pre-school education systems is clearly seen in the background of evalu-

ations of conventional early childhood learning environments. In early childhood, the role of intentional education is emphasised as a promoter of learning. It is also a fact that children are subjected to a considerable degree of random learning as they grow older and observe their habitat.

Having reached the stage where school forms an essential element, the diminishing role of the family can be seen as a natural development. From the lifelong learning perspective, however, the family's role does not diminish much when considering the concrete aspects of school. Indeed, the family and school have been regarded as the central childhood environments for learning and growth. The importance of electronic mass media seems to be increasing slightly. The experts assume that, when entering school, children also enter the world of the modern learning environments. In comparison to early childhood, their learning environment expands significantly.

The adolescence stage is characterised by various learning environments having a balanced importance. According to the experts, school, the family, and the electronic media are now the crucial factors. The so-called modern learning environments that are based on information and communication technologies are playing an important role in the learning of young people approaching adulthood.

Approaching adulthood means a diminishing role for the school-form of learning environment. Still, the significance of the family, for example, is assessed as being preserved, albeit not to the same extent as during other life cycle stages. The position of the family in the learning environment changes also. In adulthood, the various reference groups and peer groups, and working life become more important as learning environments. Taking the experts' views as the basis, one may say that, during adulthood, the learning environments are increasingly discovered and constructed by the learners themselves.

To summarise, one may state that when leaving the 'one-sided' learning environment typical of the early stage of his or her life cycle, a learner enters an entity, when reaching adolescence, where the significance of various learning environments appears to be the most versatile and most evenly distributed. During adulthood, more scope is provided by the increasing freedom of choice and learning at work.

European lifelong learning experts are fairly unanimous with regard to the fact that the family is the most important learning environment of the individual's entire life cycle. Despite the fact that the

greatest significance of the family seems to concentrate on a short period of time, it is, however, the period during which all learning is new and invariably provides a marked contribution to the earlier learning achievements. Indisputably, these initial stages of the life cycle also form the most important basic stage for lifelong learning.

As a learning environment, a school which provides conventional classroom teaching plays an important role, especially during the early stages of compulsory education. On the other hand, 'school-like' study is also increasing during adulthood.

When examining the entire life cycle, a very important learning environment seems to be that constituted by electronic mass communication. As a learning environment, it is most significant during adolescence and adulthood.

The significance of modern learning environments which are based on information and communication technologies is still seen as rather small. They may be regarded as relevant to the learning of young people and adults. This view is interesting and noteworthy, for example for the fact that the common assumption has been that these environments are, in a way, the domain of the new generation and typical of the information society.

The experts were also requested to evaluate the change in the significance of learning environments.

It is not surprising that the significance of information and communication technology based learning environments is evaluated as high. On the other hand, the role of the electronic mass media can be considered interesting. Although the role of television, for example, has been observed in other surveys, the role of the electronic mass media is evaluated as exceptionally strong in this research. This can be explained by several factors. Firstly, the concept of lifelong learning has been interpreted comprehensively. Secondly, people have a fixed and steady relationship with these types of media. Furthermore, it is difficult to deny the fact that the versatile supply of the electronic mass media provides an excellent opportunity to learn new things.

The research data also indicated the evaluators' view that learning at work has increased. During the period of school-like theoretical vocational learning it has been found that many things are learned faster and more specifically in close proximity to work. This is the case, especially in the area of vocational further training which, as such, is an example of vocational education's orientation towards lifelong learning. The connection between work and learning has

been markedly strengthened by the simulation and virtual solutions based on the latest information and communication technologies.

EUROPEAN PERSPECTIVE TO LIFELONG LEARNING DISCUSSIONS

National traditions and cultural heritage are significant to the position of school and the family as educational institutions and, consequently, as learning environments that support lifelong learning. In the Finnish debate, for example, the frequently repeated notion of the rapidly declining role of school as a learning environment is not significantly supported by wider European views. Clearly, it has been difficult to define the family's position as a learning environment. As formal education has expanded, it has not always been seen necessary to ponder the role of the family as a learning environment, quantitatively or in terms of the content. With the development directed towards better private learning environments, the role of the family will acquire an entirely new dimension.

When assessing the contribution of the European perspective to the national discussion on lifelong learning one must also remember that, from a global perspective, there are no essential differences in the preconditions of the various EU countries, for example. This is also proven by the ease with which people accept the EU's education political messages as basic principles for a national education policy, even within the constraints of lifelong learning. This development is natural and partly necessary in a Europe that is becoming integrated in other respects. This issue is the comprehensive functionality of the integration.

REFERENCES

- Alanen, A. (1981): Elinikäinen kasvatusta - jatkuva kasvatusta - jaksoittaiskoulutus. In Alanen, A. & Sihvonen, J. (ed.). *Elinikäinen kasvatusta*. Helsinki: Gaudeamus. 40-104
- Alanen, A. & Sihvonen, J. (eds.) (1981): *Elinikäinen kasvatusta*. Helsinki: Gaudeamus.
- Atchoarena, D. (1995): Introduction. In: Atchoarena, D. (ed.). *Lifelong Education in Selected Industrialised Countries*. IIEP. Paris
- Cochinaux, P. & de Woot, P. (1995): *Moving towards a Learning Society*. A CRE-ERT Forum Report on European Education. Geneva.

- Council (1970): Permanent Education. A Compendium of Studies. A Contribution to the U.N.'s International Educational Year. Strasbourg: Council of Europe / CCC.
- Crawford, M. (1994): Adult education - Who needs it ? *Adult Learning* 5(5), 23-24.
- Cropley, A. (1980): *Towards a System of Lifelong Education*. Oxford: UIE.
- Cropley, A. & Dave, R. (1978). *Lifelong Education and the Training of Teachers*. Hamburg: UIE.
- Csikszentmihalyi, M. (1982): Learning, "Flow" and Happiness. In: Gross, R (Ed.). *Invitation to Lifelong Learning*. Chicago: Follet. 166-187.
- Dave, R. (1976): *Foundations of Lifelong Education*. Exeter: Pergamon Press.
- Dohmen, G. (1996): *Lifelong Learning*. BMB+F. Bonn.
- European Commission (1994): *Europe's Way to the Information Society*. Green Paper. COM(95) 382. Brussels.
- Forrester, K. & Payne, J. & Ward, K. (1995): *Lifelong Education And the Workplace: A Critical Analysis*. *International Journal of Lifelong Education*. 14(4), 292-305.
- Fryer, B. (1997): *Lifelong learning, Exclusion and Residence*. *Adults Learning*. February. 144-145.
- Gross, R. (1982): Introduction. In: Gross, R. (Ed.). *Invitation to Lifelong Learning*. Chicago: Follet. 19-23.
- Himmelstrup, P. (1981): Introduction. In: Himmelstrup, P. et al. (eds.). *Strategies for Lifelong Learning*. Esbjerg: UCSJ. 11-23.
- Kaiser, A. (1991): *Lebensweltbezug der Erwachsenenbildung*. *Erwachsenenbildung* 2, 69-73.
- KM (1973): Vuoden 1971 koulutuskomitean mietintö. Komiteanmietintö 52. Helsinki: VPK.
- KM (1975): Aikuiskoulutuskomitean II osamietintö. Komiteanmietintö 28. Helsinki: VPK.
- KM (1983): *Jatkuvan koulutuksen komitean mietintö*. Komiteanmietintö 62. Helsinki: VPK.
- Knapper, C. & Cropley, A. (1991): *Lifelong Learning and Higher Education*. London: Kogan Page.
- Lampinen, O. (1996): Elinikäisen oppimisen käsite kansainvälisten järjestöjen ohjelmissa. [Http://www.freenet.hut.fi/eok/julkituotu/lampinen.html](http://www.freenet.hut.fi/eok/julkituotu/lampinen.html) (10.6.1997)
- Lampinen, O. (1997): Kaksi tietä elinikäiseen oppimiseen. *Tiedepolitiikka* 1, 2-3.
- Lehtisalo, L. & Raivola, R. (1986): *Koulutuspolitiikka ja koulutussuunnittelu*. Helsinki: WSOY.
- Lengrand, P. (1970): *An Introduction to Lifelong Education*. Paris: UNESCO.
- Mannermaa, M. (1997): Työ ja tuotanto tietoyhteiskunnassa. [Http://www.kaapeli.fi/eko.fi/magazine/tuotanto/html](http://www.kaapeli.fi/eko.fi/magazine/tuotanto/html) (30.8.1997)
- Mäkinen, I. (1996): Varhaisia tietoyhteiskuntavisiioita. *Signum* 29(7), 149-151.

- NIACE (1992): First Steps Training Pack in Informal Learning. Leicester: NIACE.
- OECD (1973): Recurrent Education: A Strategy for Lifelong Learning. Paris: OECD/CERI.
- Otala, L. (1995): Lifelong learning based on industry-university cooperation: a strategy for European competitiveness.
- Pantzar, E. (1991): Jatkuvaa koulutusta tunnistamassa. Tampereen yliopisto. Aikuis- ja nuorisokasvatuksen laitoksen julkaisuja 28.
- Pantzar, E. (1993a): Paluu elinikäisen oppimisen peruskysymyksiin. Teoksessa: Remes, P. (toim.). Aikuisen positiivinen koulutusvalinta. Työssä vai koulussa oppiminen. Jyväskylän yliopisto. KTL. Julkaisusarja B. 23-31.
- Pantzar, E. (1993b): Eurooppalaista aikuiskoulutuspolitiikkaa etsimässä. Aikuiskasvatus 1. 15-20.
- Pantzar, E. (1995): Theoretical Views on Changing Learning Environments. In: Pantzar, E. et al. (eds.). Theoretical Foundations and Applications of Modern Learning Environments. University of Tampere. Computer Center. Publication Series, No 1. 85-101.
- Pantzar, E. (1997): Oppimisympäristöt ja tietoyhteiskunta. In Nokelainen, P. & Viteli, J. (eds.). Digitaalinen media verkoissa 1997. Tampereen yliopisto. Tietokonekeskus/hypermedialaboratorio. Julkaisuja n:o 3. 103-125.
- Ragat, P. & Edwards, N. & Small, N (1996): The Learning Society. Challenges and Trends. Milton Keynes .OU.
- Raivola R. (1996): Elinikäinen oppiminen. [Http://www.freenet.hut.fi/eok/julkituotu/raivola.html](http://www.freenet.hut.fi/eok/julkituotu/raivola.html) (10.6.1997).
- Reischmann, J. (1995): Die Kehrseite der Professionalisierung in der Erwachsenenbildung. GdWZ. 4, 200-204.
- Resnick, L. (Ed.).(1989): Knowing, Learning and Instruction. Hillsdale: Lawrence Erlbaum.
- Sokala, H. (1996): Evoluution yhdeksäs hyppy. Helsingin Sanomat. 11.10.
- Suchodolski, B. (1976): Lifelong education - Some Philosophical Aspects. In: Dave, R. (Ed.). Foundations of Lifelong Education. Exeter: Pergamon. 57-96.
- Säljö, R. (1976): Learning in the learners perspective. Reports from the Institute of Education. University of Gothenburg, No 76.
- Taylor, K. (1998): The Brief Reign of the Knowledge Worker: Information Technology and Technological Unemployment, Paper presented at the International Conference on the Social Impact of Information Technologies, St.Louis, 12-14 October, 1998
- Tilastokeskus (1997): Tiedolla tietoyhteiskuntaan. [Http://www.stat.fi/tk/yr/tietoyht.html](http://www.stat.fi/tk/yr/tietoyht.html) (30.8.1997).
- Watkins, K. & Marsick, V. (1992): Towards a Theory of Informal and Incidental Learning in Organisations. International Journal of Lifelong Education. 11(4), 287-300.
- Zee van der, H. (1991): The Learning Society. International Journal of Lifelong Education 10(3), 213-230.

part four

challenges and policies

Global Challenges and National Answers

FRANK WEBSTER

It is now commonplace for commentators to state – as a matter of plain fact – that today we inhabit an “Information Society”. Grander still, Manuel Castells (1996–1998) has titled his massive and influential trilogy the *Information Age*. While it is easy to appreciate that, at least in very general terms, these concepts capture something of the reality of the contemporary situation it also must be admitted that it is extremely difficult to say, with any precision of definition, just what is meant by an “Information Society”. For instance, is it an economic phenomenon (where the monetary worth of information is telling)? Or is it a matter of changed occupations (where increased numbers of people are employed in informational jobs such as teaching and research)? Or is it, more straight-forwardly, distinguished by the prevalence of information and communications technologies (and thus a matter of technology)? Is it more to do with spatial relations (such that the “flows” of information between “networks” of people and places are the critical variable)? Or is it a cultural issue (where what matters is the explosion of symbols and signs in television, fashion, design and so on)? Or is the “information society” something which is characterised by a shift away from “practical” towards “theory” (hence a society in which abstract models shape social destiny)?

Each of these conceptions has been forwarded by serious and thoughtful scholars – and each has, in turn, been contested by equally serious thinkers.

Of course, the pragmatist will insist that the “information society” is a composite of all of these elements. Perhaps it is hoped thereby to advance analysis rather than getting stuck in debates about definitions. Unfortunately, however, pragmatism does not help very much, since the question must then be put: if it is a composite, just how is the “information society” composed? Is it primarily economic, cultural or occupational? Or does technology stand as the most significant factor in its constitution? With such questions, we come face-to-face with the paradox: however confidently people may assert that we inhabit an “information society”, we are in considerable confusion when it comes to defining the concept with any exactitude.

I have written extensively about this imprecision of definition elsewhere (Webster 1995). I have done this not to score points in an academic game, but to challenge the ready presumption that this “information society” is something distinctively and self-evidently new in human history. If something cannot be accurately distinguished, then it is accordingly rather difficult to assert that it is novel. Asking sceptical questions about how commentators characterise the “information society”, is also to stop in their tracks those who are overly-enthusiastic in announcing the arrival of a new and radically different type of society.

Actually, it is my belief that the continuities in society today are at least as significant as are the novelties. There is a great deal more information in circulation nowadays, and this plays an unprecedented part in everyday affairs, but very familiar forces continue to tell even in the vastly expanded informational domain. The presence of these established phenomenon must raise doubts about the credibility of the argument that the “information age” is something markedly new. If there is more information around, but this information remains under the control of long-established forces, then there are surely good reasons to doubt claims that we are entering a new era. Accordingly, such sceptical reasoning may well lead people to resist endorsing the argument that we live now in an “information age”, and – more serious still – to doubt its corollary, that adaption to this novel situation is a necessity.

In this chapter I want to put issues of definition to the side, so that I may focus on more compelling matters. I say, “to the side”, only because discerning readers will be able to see that, even in the substantive discussion which follows, definitional issues are, in fact, con-

stantly in play. My major concern in the next few pages is to ask: what is happening in the world today, particularly with regard to the more advanced and affluent societies of Europe, North America and the Far East? What are the major contours of development and what options and constraints do these trends present? As I address these questions, it will be seen that information is indeed central to what is taking place, though I doubt that talk of an "information society" does very much to illuminate what is actually going on.

GLOBALISATION

High on any list of pertinent developments must be the phenomenon of globalisation and its associated traits. Globalisation refers to the increased - and accelerating - processes of interpenetration and interdependency of relations on to a world scale, relationships in which time and space are "compressed". Relationships - industrial, financial, intellectual - are conducted across and draw on a global stage, and every one of us is influenced by these trends, whether it is in terms of the foods we eat in our homes, the ways in which we work, or the media we see and hear. Of course, this is a tendential and complex process, and there is plenty of life which remains intensely local, but there can be little argument about the realities of globalisation. Its roots lie in the distant past, traceable at least to the 16th century and the beginnings of colonial exploration, when the spatial divisions of the world began to be overcome. The temporal barriers were later in being lowered, but today we do indeed have "real-time" activities operating around the world, making it possible to conduct affairs across distance more or less immediately.

Globalisation ought not to be seen as a straight-forwardly homogenising force. One argument has it that American corporations especially have foisted upon the world their ways of conduct and their ways of seeing, leading to an "Americanisation" of life across the globe. This is the familiar theme of Coca-Colonisation. Against this, other commentators observe that globalisation is much more complicated than a one-way flow. They suggest that it brings hybridisation of cultures, a result of mixtures of cultures and massive movements of peoples, something evident in the wide range of cuisines available in any sizable city around the world, in ethnic fashions combined with

indigenous styles found just about everywhere, in the remarkable popularity, say, of reggae music across the globe.

It would be short-sighted to ignore this pluralism that has accompanied globalisation. But it is equally naive to suggest that globalisation does not reflect power differentials which do, in large part, impel considerable homogenisation. Think, for example, of the financial networks which now traverse the globe, and one must concede that these fit in with, and express, the domination of Western organisations. Again, the globalisation of manufacture has not led to significant hybridity – the lion's share goes to large-scale corporations that have their bases in Europe, North America and Japan. And, while it is true that music draws on many influences from many places, no-one can deny that it is British and American practices which account for the most part of popular music at least.

What I am insisting on here is that globalisation, while it is an extraordinarily complex phenomenon does, for the most part, shape the world in ways which bring it into conformity with Western ways. In saying this, let me stress that I do not wish to suggest that bringing the world into line with Western ways has brought stability. On the contrary, another major feature of globalisation is an intensification of competition, as once separate realms are brought into relation with others, and this impels deep uncertainty, and an acceleration of change itself as well as allowing many expressions of hybrid cultural forms (Lash and Urry 1987). What I do want to emphasise here is that globalisation expresses, above all else, the triumph of what one might call "business civilisation". By this (and by its synonym, "market civilisation") I want to underline that the world, however much variety we may witness in it, has been brought together under a common set of principles which have been historically most closely associated with the West. These principles include:

- Ability to pay will be the major criteria determining provision of goods and services.
- Provision will be made on the basis of private rather than public supply.
- Market criteria – i.e. whether something makes a profit or loss - is the primary factor in deciding what, if anything, is made available.

- Competition – as opposed to regulation – is regarded as the most appropriate mechanism for organising economic affairs.
- Commodification of activities – i.e. relationships are regarded as being amenable to price valuations – is the norm.
- Private ownership of property is favoured over state holdings.
- Wage labour is the chief mechanism for organising work activities.

To be sure, these are idealisations of what happens in practice, but what seems to be unarguable is that these principles have spread round the globe at a accelerated pace in recent decades.

There are complex reasons why this should be so, and there remain to this day important pockets of resistance to their spread, but it appears to me that we have witnessed the massive intrusion of “business civilisation” in recent years. This has been, it may be emphasized, both an intensive as well as an extensive affair. Intensive in so far as market practices have enormously intruded into areas of intimate life hitherto relatively immune even in the West. One thinks here, for instance, of child rearing (the plethora of diverting toys and television for the young), of the provision of everyday foodstuff (just about everyone nowadays is reliant on the supermarket for food, while not so long ago many families self-provided, at least in large part, through gardens and allotments which allowed vegetables to be grown and useful animals to be reared), and of the decline of self-providing activities such as dress making and knitting (cf. Seabrook 1982).

Extensively, of course, we may instance the spread of globalisation, a process which has colonised many areas that previously were self-supporting. The obvious, if under-estimated, instance of this is the elimination of the peasantry from most quarters of the earth. This, by far the majority of the world’s population throughout recorded time, is now on the eve of destruction. And the reason is clear: the peasantry is antipathetic to market civilisation. Peasants are largely self-supporting, they are sceptical of technological innovation, resistant to wage labour, and distanced from market organisation. As such, their ways of life have been diminished by what Kevin Robins and myself (1999) refer to as the “enclosure” of the earth by business practices, by which we mean the incorporation of activities once outside into the routines of the business realm.

Should there be some readers who perceive, on reading this, a nostalgia for times before the triumph of capitalism, let me stress a number of things. First of all, the penetration of market mechanisms does not, by any means, mean that there is hardship amongst consumers. On the contrary, for those with the wherewithal, reliance on the store for one's foods is preferable to the dreary round of home baking, and having to endure ill-fitting and unfashionable clothing. Second, the peasantry has been destroyed by various methods. Repression and dispossession certainly, but probably of more consequence has been the pull of the market society, offering change and opportunities that the peasant way of life could never match. Finally, no-one should refer to the success of capitalism without acknowledging the failure of its major rival, communism. Politically discredited, communism also failed in economic matters, being incapable of matching the dynamism of the West. Together these are important qualifications to any account which might imply regret about the triumph of business civilisation. Nonetheless, what must be accepted is that capitalism has won out, and its success has meant that the world has been enclosed within its orbit, within its ways of organisation.

I would also emphasise that this success – of what has been called, appropriately, the “neo-liberal consensus”, to underscore the ways in which this is the foundational principle of all governments around the world nowadays – represents no return to a former capitalist age. Not least, globalisation has ensured that there is no going back to the days of *laissez-faire*. Much of business civilisation is familiar, and would be recognised by 19th century free traders, but it is undeniably now in new circumstances. Prominent amongst these is the presence of corporations with global reach which, if they are engaged in intense and rivalrous competition amongst themselves, exclude from but the fringes of activity the small-scale entrepreneurs. Today's capitalism is one dominated by huge corporations – the likes of General Motors, Shell, Matsushita, and Siemens – with breath-taking research and development budgets (often in excess of a billion dollars per annum), international leverage, and world-wide marketing campaigns (Dicken 1992). In addition, global capitalism today is linked in real time by world financial markets – markets which trade in excess of a trillion dollars every day – the size and speed of which is unprecedented, and the consequences of which have been evident in massive upheavals of national economies such as Russia, Malay-

sia, Mexico and Spain in the 1990s. Again, today's capitalism is one which exercises global reach in many aspects of its operation, as witness the tendencies towards, and practices of, the world marketing of products, international divisions of labour, and creation of global brands.

Nevertheless, while I am at pains here to emphasise the novel features of the current era, it seems to me essential that we appreciate that these are consolidations and extensions of long-established principles. That is, today's global economy represents the spread and growth of capitalist ways of behaviour – witness the increased use of market mechanisms, of private rather than public provision, of profitability as the *raison d'être* of organisations, of wage labour, and of the ability to pay principle as the determinant of goods and services supply. In short, the “global network society” in which we find ourselves today expresses the continuation - transmutation if one prefers - of long-held capitalist principles.

DECLINE OF NATIONAL SOVEREIGNTY

Of the many consequences of these trends, one I think stands out above all others. This is the fact of the relative decline of the economic sovereignty of nations. Bluntly, governments have relatively less capacity to control the national economy than they formerly did. This is not to say that governments are helpless when it comes to exercising influence over economic behaviour within their own territories (cf. Held et al. 1999). Governments still maintain considerable power over those economic activities which are restricted to their territories. However, in this age of twenty-four hour per day electronic financial flows, when world stock markets are constantly trading in foreign currencies to the tune of billions upon billions of dollars, then the nation state must feel increased pressure to maintain the “confidence” of these markets. The evidence is plain for all to see: where a country loses the confidence of the world financial markets, then its economic strength rapidly collapses, as witness the disinvestments from the Far East in 1998 and several nations before that. Further, the global capitalist economy, one in which global corporations are the major players, is astonishingly difficult to trace to any clearly-identifiable national economy. What, for instance, constitutes the British economy? Do companies such as Nissan or Rover – significant em-

ployers within the country – represent the British economy because they have plant here, though they are owned by non-British parents and their stockholders come from around the world (and trading in these stocks is a ceaseless activity)? Much the same might be asked of Nokia: it seems quintessentially Finnish, and is certainly important in the employment of Finns, yet its ownership comes nowadays predominantly from outside the nation. Furthermore, many corporations which straddle the globe not only have a diverse ownership structure, they are also hard to identify straight-forwardly as belonging to a particular nation because so much of their activity is undertaken outside the “home” nation.

Put simply, there are nowadays serious questions to be asked about the capacity of national governments to control their nation’s economy because of the pressures to conform to global market practices, and these are compounded by problems of identifying who owns a company and to what extent it might be identified as belonging to a particular country. One result of this has been a general acquiescence from governments to the fact that they cannot do much to plan their economy. Of course, conservative governments have long had faith that their nation would thrive so long as they left the economy alone, so this has not presented them with particular challenges. It has been social democratic regimes that have most had to change their ways. Their former inclination towards collectivist policies - for example nationalisation of key sectors of industry - has been stifled in the 1990s, and they have had to accept the “neo-liberal consensus” if they intend to avoid rapid fiscal crisis.

EDUCATION, EDUCATION, EDUCATION

But if the economy cannot be touched by government, then just what are politicians to do? One key policy has led to a prioritisation of education, and the reasoning behind this is easy to understand. The argument goes that most people attend the education systems of the nation in which they are born. Therefore, government has leverage in this realm, if not in the economy. Now, in this free-wheeling global market economy in which we find ourselves, it is estimated that about 20% of all the available jobs will go to those who occupy the upper levels of this system. These are what the most significant proponent of this account, Robert Reich (1992), calls “symbolic analysts” - i.e.

those whose work involves deal-making, communication, management and such like – in the world economy. Manuel Castells (1998), adopting the same reasoning, identifies this as “informational labour”, which he estimates at 30 % of jobs in OECD countries, those which oil the wheels of this “network economy” by organising, designing, trading and innovating.

Let me emphasise that “informational labour” is a widely differentiated group, ranging from highly creative film makers to professional accountants, but it does share two characteristics. The first is a capacity to change itself, and to adapt to change, as a matter of routine. Informational labour is always on the alert for novelty and new learning, constantly up-dating its skills – traits essential for prosperity in today’s highly competitive global economy. A constant refrain here is the need for “flexibility”, and symbolic analysts have this quality in abundance. The second characteristic informational labour shares is a crucial contributor to this adaptability – high level education, not in a specific skill, but in a capacity to “self-programme” (or, in language popular in British policy circles, in having “learned how to learn” and thereby become equipped for “lifelong learning”). Attendance at higher education institutions cultivates the “transferable skills” so essential to symbolic analysts because these are what is required by the global market economy that is intensively dynamic. Indeed, no learning, at however high a level, is nowadays likely to last more than a decade or so - except for the capacity to re-educate oneself in readiness for meeting the challenges of constant change.

So what does this mean for national governments? The answer is that a government which can command a disproportionate share of this 20-30% of top jobs worldwide, may deem itself successful because large numbers of its citizens will be in well-paid and rewarding occupations. And what government can do towards meeting the challenge of the “information age” is encourage first rate educational services so that large numbers of its young people emerge with qualities required by the global economy. Such is precisely the reasoning articulated by Robert Reich before and during his service as Secretary of State for Labor in the Clinton administration (1992-1996). And because the same refrain is echoed by Prime Minister Tony Blair in his ambition to make “London the knowledge capital of Europe” by prioritising “education, education, education”, the British New La-

bour government has been described as “Reichian” in its outlook. The policy means that one can resign oneself to the play of market forces at the global and national level by placing the onus of policy on producing the “human capital” that most appeals to this world system.

Incidentally, those nations that lack the necessary educational infrastructure will be doomed to supplying the workers who are to be acted upon by the symbolic analysts. In addition, there is likely to be serious internal stratification within even prosperous nations, since those people who fail to take advantage of the fine education available in nations such as the USA and Britain, are likely to suffer badly in this era of informational capitalism. For a start, the old options – semi and unskilled labour in factories and coal mines – are increasingly not available, not least because information labour has arranged for much of these to be automated and/or to be undertaken abroad. After all, while the under-educated in metropolitan states may be poor as compared to their countrymen, in comparison to the labour forces in China and the Philippines, they are expensive to hire, and these days informational labour is quite adept at organising things so that necessary non-skilled work is conducted at far distances.

Thus a distinct prospect is for further polarisation of classes within relatively advantaged nations: while government does its best to encourage informational labour that appeals to the global economic system, should it try to implement measures that militate against polarisation by redistributing resources to the under-achieving, then it risks losing the confidence of the world’s markets which frown on policies which introduce “distortions”, just as it is likely to estrange the successful symbolic analysts who resent high taxation (and who are often capable of migrating with their high-level skills). Indeed, politicians will need to negotiate a fine balance between satiating global capital and meeting the reluctance of the better off to pay taxes, while also ensuring that the social fabric of the nation remains sturdy enough to appeal to investors and the symbolic analysts who need to be persuaded to stay inside the nation. After all, if an “underclass” develops to an extent that the quality of life of the affluent is threatened (unsafe areas of the city, high levels of street crime and the like), then however sophisticated are electronic defence systems (commentators make much of the spread of CCTV systems in the

inner city, of the “gated communities” which insulate the well-off [Blakely and Snyder 1997]), significant numbers of advantaged people will leave (European readers who are sceptical might reflect here on their reaction to the fact that, in the United States, around ten thousand people die annually from handguns; in European nations the equivalent figures rarely rise above two dozen). For the most able symbolic analysts Geneva might appeal more than Los Angeles if violent crime especially continues to grow. It is precisely this fear which drove Robert Reich to advocate what might be called post-Reagan policies for the USA in the 1990s. The poor cannot be “thrown to the vagaries of the market if the social fabric is to be maintained, so socially-ameliorative policies are recommended, but these must be mild enough not to incur the displeasure of the better off or global capital.

CULTURE

It is very easy to give all of one’s attention to the economic forces in play, and to the policies adopted by governments which try to gain relative advantage in this new situation. However, the cultural dimensions of the current epoch ought not to be ignored because they too are of enormous consequence. When I refer to culture I wish to point especially to the symbolic realm of life, that arena which feeds into one’s identity and consciousness. I should like here to identify four issues that pose enormous challenges to nations - and indeed the entire world - today.

Globalized Media

Globalisation profoundly challenges the well established practice of national broadcast media. In evidence one might point to the technological innovations which bring us satellite television services as well as the Internet while by-passing national frontiers. But one needs to add that, since national broadcast systems, at least those outside the United States, have been brought to us largely by state-funded organisations, these have felt the destructive impact of a changed climate of opinion. State-sponsored systems are out of step with today’s stress on private rather than public provision of services, and accordingly where they survive they have to face continued

diminution of their revenue as well as competitive pressures from commercial suppliers. Digitalisation of television, as well as additional terrestrial channels and cable services, for instance, will mean that it will become increasingly difficult for state-funded television to justify its funding.

In addition, the ethos which came to justify such services, at least in social democratic societies, was the doctrine of public service broadcasting, one which was conceived as a national service to be delivered by public servants who were imbued with a vocation to promote in broadcasting “information, education and entertainment” (as went the famous formulation of the founding Director General of the BBC, Lord Reith). Today, this is regarded on many fronts as unacceptably elitist as well as antipathetic to commercial services where entertainment prevails. The old-fashioned services produced programmes about which audiences had little or no choice, audiences getting what they were given in return for an obligatory tax on tv ownership – nowadays such form of supply is seen as unaccountable to those who pay for the service. Again, the programme makers tended to be highly educated and from privileged backgrounds, ones which predisposed them towards programming which stressed “worthy” and “educational” output – this today is regarded with suspicion, as being out of touch with the consumer’s right to have the programming which he or she desires. Moreover, public service broadcasting rather presumed that it could engage the entire nation in a “conversation with itself”. The BBC (British Broadcasting Corporation), in this regard, might be seen to have contributed to a “public sphere”, broadcasting to the whole country, where, through diverse programming, the nation could come to see itself in its variety as well as its distinctiveness. This “public sphere” devoted a large amount of air time to coverage of news and current affairs (at least double that provided by commercial channels in the U.K.), since, ran the argument, a genuine public service ought to privilege information about political (public) affairs. Moreover, the BBC also endeavoured to expand on this commitment to promote high quality coverage of drama, documentary and even music.

Today, one may readily understand that these days of public service broadcasting as well as a single public sphere are numbered (Tracey 1998). For a start, there are many legitimate critiques which highlight the failures of the former system: this public sphere as often excluded as it included, as often projected a narrow view of the nation

as it did a plural one. Anyway, “narrowcasting” is ensuring that the notion of a national audience is collapsing – instead there are many segmented audiences, occupied with specialist interests, often receiving their programming from abroad.

The question then is, does one relinquish television to the world market? This may turn out to be the future reality whatever governments may desire, and, while the short-term will surely see the ascendancy of transnational organisations such as Rupert Murdoch’s satellite channels, Star TV and MTV, the spread of internet-type services may offer a good deal of diverse programming even where it is organised on commercial terms.

A second question raises the matter of the public sphere, and with it that matters of identity. In the old days of public service broadcasting, it was presumed that the nation could be addressed more or less collectively, and, at least to a degree, citizens of a given country could see a reflection of themselves in those sorts of programming. Today, one might more accurately talk of the development of multiple public spheres, of many means by which people may be informed and entertained, either through television or computerised networks. Some thinkers contend that this can be a positive force for extending pluralism, with more opportunities for the participation of citizens and for their reception of a more diverse sort of programming.

But there must also be anxieties expressed about the potential for fragmentation of identities and outlooks this may bring. For if the prospect is of multiple sites of information, and of people receiving highly diverse programming in the privacy of their own homes, then how might a national consciousness be addressed? How might citizens speak to fellow citizens? To be sure, one might reply that in the past such a practice has been deeply divisive, homogenising very different peoples and proving incapable of catering for the diversity of a nation’s population. Yet the ambition to talk as a nation disappears with “narrowcasting” and, while there may be gains in terms of the individual or at the small scale level (the football fan in London can readily access his team in Barcelona, the Turk in Berlin keep in touch with his ethnic community in Istanbul), there may too be put at risk the ability to conceive of a nation as a phenomenon with a collective consciousness.

But perhaps things will not turn out so negatively. John Keane (1998) suggests that what might develop is a multiple level of “public

spheres": an extension at the supra-national level (e.g. trans-European television services, even global programming), the continuation of national broadcasting systems (even in commercial form, but also in terms of services which remain reliant on public funding), as well as a proliferation of localised (if global in reach) and specialised services which might link specialist communities. In such ways, the optimist suggests, the complexities of identity in today's world might be attended to, with citizens capable of reaching out beyond their own country for some matters (perhaps to think of themselves as European in particular ways), turning to their own nation for others, while always able to fulfil particular informational requirements by the proliferating specialist services – for instance, "I am a European, but am also Hungarian, while simultaneously an ethnic Jew who has a particular interest in the fortunes of Inter-Milan football club". Perhaps it is such "multivocalism" that is most consonant with the postmodern culture characteristic of the globalised capitalism amidst which we live. For sure, national governments will be called upon to negotiate the difficult terrain of this new media map.

Place image

Historically places have always been important, but the reason for their importance seems to be changing. In the past, places were important largely because of their physical location – for instance, Gibraltar commanding the entry to the Mediterranean, Cairo the mouth of the Nile. In recent times, this physical reason for the importance of place is in decline, to be replaced by the primacy of "image". This stems, of course, from the fact that space has been, in large part, diminishing in significance. When, for example, one may organise affairs through telecommunications connections, then the former reasons for location are of less precedence.

However, this is not to say that places are no longer important. Not at all. For a start, this global network economy requires that there are central switching points, what open might conceive of "nodes" amidst the world's information circuits. Several scholars have, in this regard, pointed to the emergence of "global cities" – pre-eminently London, New York, Los Angeles and Tokyo – as locations where are congregated key world players such as corporate headquarters, key government departments, financial services, media and

marketing centres. With these come the essential occupational groups, composed heavily of symbolic analysts, whose work calls for their location close to "where the action is". However, what is interesting is that these places attain, and aspire towards, particular imagery - as action-packed, as galvanising, as powerful, as centres of cultural innovation and availability. A crucial point is that these places do not automatically attain a particular image, but this imagery requires active involvement to be developed - and the wrong image may have negative effects on the prosperity of a place. For these reasons, what we are witnessing is great investment being made in the imagery of places - because it can have very real consequences for jobs and positioning in the global economy.

The point can be made negatively easily enough. Consider, for instance, Johannesburg in South Africa, a city located in a potentially strategic nation for African development, blessed with rich natural resources, and in a region with good quality educational institutions. It also happens, however, to be projecting an image of being crime-infested and dangerous, scarcely the place to draw the symbolic analysts and investors of global capital. One might also instance the case of Birmingham in this regard, Britain's second biggest city, and one developed through industrialism (more precisely engineering) and its location at the centre of canals, railways and roads in the 18th and 19th centuries. De-industrialisation has led to a massive collapse in traditional employment in manual occupation, while much of the place-image was dull and boring, a city ill-suited to change and weighed down with out-dated industry. But over the past two decades or so huge investments have been made in reinventing Birmingham - to which end the centre of the city centre has been radically overhauled (to stress its civic grandeur as well as fine cultural facilities - its theatres, its orchestras, its conference and performance venues), its multiculturalism has been heavily publicised to stress Birmingham's capacity to adapt to and precipitate change as well as to offer huge varieties of experience, its canals have been rescued from industrial decay and abandonment to become walkways into the heart of a city of around 1.5 million citizens, its airport developed to become an international service, media organisations encouraged, universities expanded, and so forth. The upshot has been a massive expansion of service employment, the increased attraction of Birmingham to entrepreneurial informational labour, and a heightened

role as a hub in the British, European and world networks along which affairs are conducted. In this regard, consider also the situation of Budapest, a large central European city of unsurpassed architectural beauty and with a rich history of music and the arts. However, it is a city that is, relatively, little known on a world stage, since it has been distanced from the world's media and incapable, in the Communist era, of projecting itself in desirable ways. This is likely to change, though it will take enormous amounts of energy to "reinvent" Budapest – to establish the communications infrastructure necessary for success, from roads and air transport to media systems, to an open, innovative and stable commercial sector.

The general point that place image is of heightened importance may be better appreciated beyond consideration of metropolitan centres. Tourism, one of the world's biggest industries, puts an enormous premium on imagery. The likes of Greece and Spain are heavily dependent on carefully crafted and assiduously maintained images for around 30 % of total employment. Few believe the myths of "authenticity" that are projected ("unspoilt" places, "genuine" people and the like), but still these places draw tourists in significant part because they project a particular sort of imagery – of their folk cultures, their cuisines, their hospitality, their safety, etc. This imagery does not appear by happen chance; it must be worked upon if it is to continue and be capable of adopting to ever-changing requirements. Governments – national, regional, supranational and local – will undoubtedly be called upon to play a central role in this recreation.

Heightened cosmopolitanism

The accelerated globalisation that has taken place over recent years brings with it a generalised heightening of cosmopolitanism. This is evident, for example, in the increased awareness of different cultures and histories that comes from world-wide media (which is not to say that this coverage is in any way representative). But cosmopolitanism stems from many other factors too – from awareness of the increasingly international origins of products, from knowledge that one's work activities draw in many other countries, from the massive growth in foreign travel (of both work and tourism), from interaction with migrants from many different cultures, from the rapid development of English as the de facto lingua franca around the world

(which eases communication between members of minority linguistic groups), from daily consumption of foods bought in the local supermarket which come from all corners of the earth...

This heightened cosmopolitanism must be one of the most important characteristics of living at the dawn of the second millennium. However, the experiences of cosmopolitanism are not equally distributed. The relatively privileged symbolic analysts are amongst the most cosmopolitan of all groups. After all, they are routinely in touch with people from around the world (via the internet, business travel, because they work in metropolitan – and thereby variegated – centres, by their capacity to enjoy the fruits of multicultural life [the restaurants, the cinema and theatre etc.]), and thereby comfortable with variety and differences between peoples.

This might be contrasted with the experiences of those, disproportionately concentrated in the least advantaged sectors of society, who feel most threatened by globalisation. These are the groups whose employment prospects are uncertain and whose options are limited, whose ways of life are challenged by the extension of the global market, who find globalisation not an opportunity but an anathema which promises to uproot everything once thought secure. Not surprisingly perhaps, these who are threatened are readily drawn to fundamentalisms of one sort or another (militant Islam, born again Christianity, neo-Fascism, deep ecology) because fundamentalism gives certainty in an uncertain world. Fundamentalism provides a faith in established creeds, offering a “return” to a secure and certain order which has appeal especially to those who are unsettled by the global market’s dynamic.

At least two things are striking about this situation. The first is that those attracted to fundamentalism are found in every nation of the world, but especially amongst the most marginal. The second is that fundamentalisms articulate a creed that is the very opposite of the cosmopolitanism of the wider society (though fundamentalists are not averse to using the latest technologies to advance their views). By, for instance, evoking a mythical past (of national history, race or religion), fundamentalism sets itself against the internationalism of the more fortunate members of society. Moreover, a good deal of fundamentalism is extremely dangerous, expressing itself in racist attacks, or in terrorism and civil conflict, aimed as a rule at minority ethnic groups or an imagined enemy (the “great Satan” of the West). The

most disturbing expression of it in Europe in recent years has been the waves of "ethnic cleansing" in the former Yugoslavia, directed at minority populations in the name of a mythically pure nation and national identity.

What one might project from this potential polarisation between those who are more cosmopolitan and those who are unsettled by globalisation is that conflicts between nations will decline. This is a remarkable phenomenon, since wars for most of the past several centuries, have been between nations over territory. This form of warfare seems to be receding, to be replaced by conflicts between groups within nations (when one, for instance, proclaims that it epitomises the "true" national creed, something which requires the expulsion of foreign, contaminated and contaminating, "outsiders" – who may well have lived inside the nation for centuries) and across national boundaries (where a bond is forged between fundamentalisms against a common enemy). As we are witnessing in Kosovo, and before this in Bosnia and Croatia, these challenges are formidable to nations as well as to the wider international community.

Migration

Globalisation presupposes the movement of peoples as well as information. And how pleasant travel is for those of us blessed with credit cards, prepaid flights, and the promise of well-paid employment, Still more enjoyable is it to be a tourist, to visit other parts of the world at one's leisure, where one will be chaperoned, attended to, pampered... We are familiar with this sort of migration: the visiting scholar, the international businessman, the annual vacation in Antibe or Marbella...

But of course this is but one part of migration. The other, a part which has grown to unprecedented levels since 1945 and especially since the 1980s, involves the poor who travel to find a better way of life. Such migration is by no means new – think of the Irish who sailed to the United States, forced out of their nation by famine in the mid-19th century, or consider the Italian exodus from the South of that country where the land could not offer a sufficiency... Nonetheless, in recent decades migration has grown enormously, and most of it is for reasons of economics. The world's poor, wherever they are and whenever they can, migrate to where they might find better opportunities.

For the most part, this means that peoples move from the South towards the North (the majority, of course, do not move since migration is a last-ditch option, and the majority who do move only make it to the urban centres of their own nations, but still the impulse is evident everywhere, and chiefly it is to try to make a better livelihood).

There are a great many consequences of this migration, but Zygmunt Bauman (1998) puts his finger on perhaps the most telling. In a world of high-level migration, the privileged are "tourists" who are, as such, encouraged to travel freely and with pleasure, while those at the bottom of the social heap are the "vagabonds", are those who are regarded as tramps and discontents who ought really to "remain where they come from". In Bauman's terms, the migrants from the South are those who most disturb those in the (relatively) privileged North - their skin colour is different, they dress differently, their cultures do not conform to our own, their languages are incomprehensible... As such, Bauman continues, they are the nightmarish alter egos of those free-travellers who are the beneficiaries of globalised capitalism. Accordingly, they are a source of conflict and tension that must be addressed.

I do not believe that we can wish away this conflict by saying that people should simply be tolerant of one another. Of course, I earnestly advocate this, but it is not enough. Migration is but one, important, dimension, of a global market society which is subject to constant change. Indeed, migration at the levels we experience today is a concomitant of this fluidity of advanced capitalism. However, this upheaval necessarily weakens the bonds that develop amongst stable peoples, not least (if not only), by bringing into play others ways of life, other backgrounds, other - strange - ways of behaving. Encountering others is surely an important stimulant for innovation, and one might welcome many aspects of other cultures experiences, yet still a key issue then remains: how might people retain a sense of commonality, of togetherness, while living with differences? What are the bounds of tolerance? Where might the line be drawn between sufficient difference to stimulate change while at the same time maintaining constancy? This is indeed an extraordinary problematical issue, and it is one which surely must be tackled by many agencies, at many levels from the local to the global, now and increasingly in the future. If ever there was a global challenge which requires national (and other) answers it is this: how might we live together amidst differences?

REFERENCES

- Bauman, Zygmunt (1998): *Globalization: The Human Consequences*. Cambridge: Polity.
- Blakely, Edward and Snyder, Mary Gail (1997): *Fortress America: Gated Communities in the United States*. Washington DC: Brookings Institution.
- Castells, Manuel (1996–98): *The Information Age*, 3 volumes. Oxford: Blackwell.
- Castells, Manuel (1998): *End of Millennium*, vol.3 of *The Information Age*. Oxford: Blackwell.
- Dicken, Peter (1992): *Global Shift: The Internationalization of Economic Activity*. 2nd edition. London: Paul Chapman.
- Giddens, Anthony (1990): *The Consequences of Modernity*. Cambridge: Polity.
- Held, David, McGrew, A., Goldblatt, D., and Perraton, J. (1999): *Global Transformations: Politics, Economics and Culture*. Cambridge: Polity.
- Keane, John (1998): *Civil Society*. Cambridge: Polity.
- Lash, Scott and Urry, John (1987): *The End of Organized Capitalism*. Cambridge: Polity.
- Reich, Robert (1992): *The Work of Nations*. New York: Vintage.
- Robins, Kevin and Webster, Frank (1999): *Times of the Technoculture: from the information society to the virtual life*. London: Routledge.
- Seabrook, Jeremy (1982): *Working Class Childhood*. London: Victor Gollancz.
- Tracey, Michael (1998): *The Decline and Fall of Public Service Broadcasting*. New York: Oxford University Press.
- Webster, Frank (1995): *Theories of the Information Society*. London: Routledge.

So What?

Reflections on the Study of Information Society

KAARLE NORDENSTRENG

This chapter was first supposed to be an epilogue, highlighting the central points of the bulky text. But then I realised that if the reader has ploughed through the 10 chapters, he or she no longer needs tutoring about what to make of it all – a reader surviving this far is no doubt mature enough to conclude for himself/herself, what the meaning of “information society” or “informational societies”, in short IS, really is.

Nevertheless, I invite the reader to ask So What? And to answer by focusing on what all this suggests about how to *study* the phenomena of IS. In other words, we should now shift the perspective from the phenomena themselves to the ways in which they are articulated in academic disciplines – from the “real world” to the paradigms and research traditions about the world. Such a meta-perspective in fact suggests that we revert to the first chapter, where Antti Kasvio guided us through the main traditions of academic thinking about IS, and indeed to the Preface, where Erkki Karvonen reminded us about the great stories of historical revolutions, the latest of which is crucially made by information.

However, this epilogue is no place to continue discussing the merits of various research traditions. I shall simply offer some ideas for conducting and organising academic studies so that the challenge raised by the preceding chapters will be adequately met in universities – both in our Finnish reality (and in similar western European

conditions), and in the Hungarian reality (and in similar Central/East European conditions). My reflections are presented from two angles to the contemporary academic institutions: Why is IS worth studying? How should studies of IS be organised?

The reasons for studying IS can be listed under four headings:

1) history, 2) economy, 3) information, 4) society. In short, my thesis is that, especially in contemporary journalism and media studies, IS can save society from falling between the fashionable chairs of culture and technology.

The ways to study IS, on the other hand, can be summarised by 1) placing emphasis on sociology and political economy, i.e. on macro paradigms instead of countless micro perspectives, and by 2) ensuring that the studies are conducted from a broad interdisciplinary platform, while on the other hand not creating an intellectual goulash.

WHY TO STUDY IS?

“One cannot eat information” is a standard argument against those who have made IS into hype. Indeed, even the most advanced post-industrial societies remain dependent on a lot of physical labour, and dreams such as telework reducing traffic and electronic management eliminating paper are far from materialising. The car and paper industries have not collapsed; on the contrary, traffic and pollution problems are getting worse. Although the European Union is advocating eEurope as a regional policy towards IS, and local initiatives such as eTampere follow suit, it is important to be realistic about the socio-economic developments, as highlighted by the chapter of Raimo Blom, Harri Melin and Peter Robert.

Accordingly, one should be careful not to mystify IS and turn it into an ideology, as is the tendency in national IS programmes exemplified by the Finnish case in Jari Aro’s chapter. On the other hand, we should not become hyper-critical, either, and deny the significant new aspects associated with IS. This topic simply cannot be overlooked in contemporary social science. In this sense an answer to the above question is self-evident: IS should be studied because it represents something that is vital in social development.

But my point goes beyond the merits of the IS developments themselves. I find IS quite useful, particularly in studies of journalism and

mass communication, since it provides such intellectual material that invites, indeed compells, a proper *context for understanding the media*. The same could obviously be said from the point of view of other social sciences, but my arguments here are based on media studies.

History

First of all, IS suggests a broad outline of history – with waves and revolutions, as noted in the editor’s Preface. My own introductory course on communication has started since the early 1970s with a perspective of communication “revolutions” (speech, writing, printing, electronic) related to the fundamental socio-economic modes of development (hunting-gathering, agriculture, trade, industry) and to the respective socio-political systems (tribal, feudal, capitalist, socialist, democratic). In such a perspective IS has a natural and strategic place, showing how all societies at all times have been to a degree informational societies and how this aspect has lately grown in importance.¹

Consequently, this perspective helps to create and maintain a historical frame of reference. History is all too easily overlooked in media studies, which are typically dominated by the juicy elements of the day – including media spectacles and new technologies understood as part and parcel of IS itself. So I admit that IS has also nurtured an unhealthy tendency towards a superficial notion of communication as something a-historical. Armand Mattelart even suggests in his recent book² that IS and communication has replaced development as the paradigm of endless progress, which in fact prevents us from seeing history beyond the past decade or two, thus leading us to a mental “short circuit”. Yet, I am convinced that IS also feeds a healthy tendency to highlight rather than cover up history.

Economy

Secondly, IS suggests an economic perspective. This includes the customary breakdown of labour force into different types, with informa-

1. This paradigm was elaborated in my introductory textbook on journalism and mass communication, with a section on “Information explosion”, published in Finnish in 1975 (*Tiedotusoppi*) and translated into Swedish, Danish and Hungarian in 1977.

2. *Histoire de la société de l’information*. Paris: Éditions La Découverte, 2001.

tion processing as a growing sector in the occupational structure. But information economy is much more, as Pál Tamás points out in his chapter; it takes us back to the fundamentals of social relations – literally to the radical tradition in social sciences, including the classics of Karl Marx et al. It was no coincidence that the OECD was among the first to respond to the challenge of IS, known in the 1970s as “computer-telecommunication policy”. It is also symptomatic that IS issues in the EU belong to a commissioner (Martin Bangemann, followed by Erkki Liikanen) whose prime mandate is in trade and industry.

An economic perspective – both macro and micro – on IS enjoys such wide support that there is no risk of economy being forgotten. Rather there is a risk that the IS discourse invites “soft” culture to be offset by “hard” economy. But considering again media studies in general, it is obvious that economic aspects are overlooked and therefore IS serves as a welcome corrective measure. In fact, a cultural studies orientation in approaching the media has created such a heavy emphasis on the symbolic level of media discourse that the material level of media structure has been neglected. It is in this sense that I welcome IS as a balancing factor in the paradigmatic struggle – to ensure that political economy is not replaced by cultural studies.

Information

The nature of information and communication is not one of the strongest parts of media research tradition. Actually it is a paradox and anomaly that a discipline has pretty much bypassed the core of the life phenomenon which it is supposed to examine. Likewise, the scientific and administrative approaches to IS lack crystal clear definitions about what information is. There persists widespread confusion between more or less technical information and human knowledge, especially in languages such as Finnish, where the word for intelligent knowledge (“tieto”) has been adopted to refer to all kinds of information, including computers (“tietokone”, literally “knowledge machine”).

The confusion is so common, and the homework of media studies so poorly done, that it is naturally exposed by IS. Therefore IS does good for media studies – not directly by offering conceptual clarity but indirectly by compelling the discipline to theorise about its core concepts. Karvonen’s chapter reminds us all about his challenge.

Society

Like information, society tends to be lost in media studies. This is especially true under the influence of cultural studies, which tend to reduce society into a thin web of power relations. Similarly, technology tends to distract attention from social relations and structures. Here IS by its very nature serves as a corrective measure – as in the case of economy. Society with its macro perspective is such an essential part of the IS idea that it cannot be missed even by cultural and technological enthusiasts.

It goes without saying that there are different concepts and schools of thought about the nature of society, and I do not suggest that IS helps to solve this paradigmatic problem. However, it is already important that society is compelled to occupy a prominent place in the agenda of research and study. Ironically this has to be stated not only regarding media studies being pursued within the humanities but also within the social sciences.

The whole field of social science today is in a problematic – some would call it crazy – state of affairs, not least because of the increasingly blurred boundaries with other fields of science. In this respect, too, IS serves as a healthy catalyst for deconstructing the system of sciences. Likewise, IS helps to avoid a separation of theory and practice – to bring analytical reasoning and policy considerations to a common intellectual platform.

HOW TO STUDY IS?

The first answer to this question is to set priorities regarding the disciplines being studied: to ensure that society is not lost between various exciting and fashionable elements such as new technologies, top priority should be given to sociology. IS cannot be understood without at least the fundamentals of general social science, in particular what is known as macro-sociology and political economy.

This does not mean in practice that everyone must become students of sociology. A rudimentary understanding can be achieved even by one course, if it is built so as to cover both the philosophical traditions of the past and the theoretical streams of the present, supported by an appropriate textbook.³

3. A comprehensive reader on social theories of the present is *Understanding Contemporary Society*, edited by Gary Browning, Abigail Halcli and Frank Webster (London: SAGE, 2000).

Second to such a basic knowledge of sociology comes a course on the “classics” in IS. In practice, this would be made up of readings of those scholars and works listed in Kasvio’s introductory chapter – from Karl Marx and Max Weber to Anthony Giddens and Manuel Castells.⁴

Such a dose of basics helps the student to acquire a broad frame of reference – to appreciate IS primarily in a macro perspective, without being led astray by various micro approaches. The curriculum aims at inspiring the student to construct a holistic picture of IS – to reach beyond a postmodernist solution of fragmented landscape towards a great narrative.

However, a preference for a macro perspective and a big story does not mean to feed the student with a uniform ideology. On the contrary, a vital part of the pedagogy should be to engender critical thinking about IS – a kind of sensitivity training on how to avoid being indoctrinated by political and technological forces.

Finally, the study of IS should be organised in a truly interdisciplinary way instead of being made into the bastion of a single school of thought. On the other hand, like any interdisciplinary project, this open platform should avoid going to the other extreme and becoming so eclectic that depth is sacrificed to breadth.

4. The Tempus project and the present textbook inspired its authors, particularly Harri Melin, Erkki Karvonen and Kaarle Nordenstreng, to put together a set of classic texts, which were translated into Hungarian and published as another volume of the project. Later discussions with Frank Webster led to prepare a more comprehensive reader, which will accompany the 2nd edition of his *Theories of the Information Society*.