

**Brainstorming
„Digital technology - shaping the future“**

July 13, 1998

Executive Summary

Digital processes are transforming the way people around the globe work and live; within Europe, Munich can rightly claim to be one of the centers of the new economy with its strengths in media, banking, and research. Our participants were all drawn from the local area, but they presented views that were far from parochial in character. Speakers considered the shape of an industrialized society after the digital revolution, with particular emphasis on likely economic consequences. While they disagreed on many specifics, they all agreed that with the working world undergoing such a deep transformation, social and political relations would have to change as well. Standing still is not an option. Further, virtually everyone agreed that digitalization tended to both speed up and amplify existing traits within an organization, or indeed within a society. Thus a group already well-adapted to change is likely to change more, and derive more benefits from change, in a digital era. For those willing to seize new opportunities, digitalization offers the promises of virtuous circles and increasing returns. For those disinclined to take advantage of the digital revolution, relative decline threatens their current comfort.

Dr. Gabriele Hooffacker reminded participants of the revolutionary impact that digital communications have already had. She recounted her experience as one of the early organizers of Glasnet, one of the earliest providers of internet connections in the Soviet Union. She had just returned from a Glasnet conference in Moscow - August 1991 - when the tanks rolled in the coup against Gorbachev. Glasnet provided the outside world with a valuable live connection to Moscow in a time when one of the plotters' key objectives was to control all outgoing information. Furthermore, people working against the coup could get an accurate picture of the outside world's reaction, which boosted their resistance. Control of information passed away from the state machinery and into the hands of the people; by helping to flatten the information hierarchy, Glasnet helped change history.

But flattening hierarchies may not necessarily bring the results that its proponents claim. Dr. Hooffacker drew an analogy between a future networked world and the Middle Ages. In a networked world, the incremental advantages of a technology or a given company may be so great that it achieves a nearly permanent dominant position, comparable to a strong medieval kingdom. People organized into smaller units may have little power in such a world, leading to social relations closer to

those of lord and vassal than the more equitable relations that prevail today. The interchangeability of locations in digital work may paradoxically bring less mobility to most people, rather than more.

Against this dystopic scenario, she posed a more hopeful vision, propelled by the same forces of digitalization and globalization. For starters, computerization is spreading throughout societies, and not only in highly industrial societies. Prices are continuously falling and public access is increasing, so to talk simplistically about 'information-rich' and 'information-poor' does not really illuminate the shape of future societies. Furthermore, the hierarchy-levelling effect of digitalization can give smaller groups the ability to compete against much larger organizations that would have an insurmountable advantage in a non-digital world. The future Middle Ages, in this sense, could bring widespread prosperity along with a more humane scale of social and political interaction than prevailed in industrial society.

The key dynamic, Dr. Hooffacker observed, is that networked systems tend to amplify the means of communications that already exist in an organization or group. If communications function well, they will function better when networked; if they function poorly, they will likely get worse. The future is still clearly up to us to shape.

Prof. Dalia Marin addressed macroeconomic aspects of the digital revolution. In a nonmaterial economy, the principle of rivalry no longer applies. This has profound implications. Typically physical goods are based on rivalry: if one person consumes a good, this cannot be consumed by anybody else. Only one person can use a particular thing; resources are finite; once something physical is used up, it is gone. In a nonmaterial economy, in which the produced output consists of ideas which can be expressed in bits and bytes, these rules no longer apply. One person using an idea does not prevent another person from using that same idea. Software provides a useful example of this effect. Furthermore, the raw materials of a digital economy are limited only by human creativity; that is, they are effectively infinite. Ideas are not used up in the same way that gasoline or food is used up. Thus the nonmaterial economy offers the prospect of unlimited growth.

Economists looking at these fundamentals of the nonmaterial economy are finding positive and negative aspects for society as a whole. Prospects of infinite growth, of diminishing dependence on scarce natural resources for prosperity, and welfare based on knowledge are all attractive propositions for post-industrial societies. On the other hand, the transition to a nonmaterial economy will cause dislocation comparable to the transition from an agricultural to an industrial economy. Further, by reducing the value of difficult physical labor, it will reduce the status of many male breadwinners, with possible social difficulties to follow. By laws of increasing returns, and the so-called superstar effect (in which a well-known practitioner can earn far more than an equally skilled but less known person), a nonmaterial economy may bring about a distribution of wealth that offends many citizens' concept of justice. Professor Marin observed that in an advanced economy, income changes brought about in the digital revolution may separate a

broadly-based middle class into richer and poorer groups, with incomes more divergent than they are today.

One of the current questions about the relationship between the material and nonmaterial economies is whether or not massive investments in information technology have improved productivity. Professor Marin cited figures showing that productivity gains did not match the claims that were being made for the new economy. On the other hand, many technical questions of measurement remain, and understanding the transition from industrial to information economy is as much an open field as developing concepts of the nonmaterial economy itself.

Warnfried Dettling offered seven theses on the influence of globalization and digitalization on society and the world of work, emphasizing the changes in Western Europe and the paradoxical effects of the digital revolution.

First, globalization leads to redistribution of wealth both among and within nations. Islands of wealth will develop within generally poor countries; pockets of poverty will emerge (or persist) within generally rich countries. First, second and third world conditions can be found within a given society.

Second, globalization tends to make industrialized societies richer as a whole, but also to increase disparities within them. Globalization brings, and requires, concentration on high value-added activities. Those who can contribute high levels of added value will see their relative earnings increase; those who miss opportunities will find it harder to catch up.

Third, the digital revolution - the third industrial revolution - brings even greater consequences than globalization. This revolution changes not only the amount of work done in a society but also the type of work that is done. Although digital societies will on the whole grow richer, there are critical questions to be answered in the organization of the working world, in the organization of social cohesion, and in the organization of individual life plans.

Fourth, work in the digital era will be more intelligent and more fulfilling, but it will also bring greater responsibility down to the individual level and increase the consequences of individual errors. Production in the digital era is also likely to take place among small, professional, homogeneous units. This will further encourage the segmentation of society. At the other end of the social scale, the demand for unskilled labor will likely drop dramatically.

Fifth, the digital revolution raises the question of social cohesion. Dettling asked if Brazil was the model of the future. Will there be solidarity between winners and losers in the new economic order? We should consider economic inequality separately from social inequality and ensure that flexibility in work relations also benefits the social contract.

Sixth, these thoroughgoing societal changes require innovation at the individual level. Instability of work in time and space leads to uncertainty in making individual life plans. The optimal way for a person to cope with these changes is

far from clear. This places considerable stress on personal relations, families, and social capital. In such a world it is important for a society to make generous provision for second chances; otherwise, unwillingness of individuals to take risks could hold back the society as a whole.

Finally, digitalization and globalization require a change in mentality. In this area, decision-makers in advanced societies would be well advised not to make globalization a scapegoat for structural changes that are taking place anyway; to focus their energies on finding win-win solutions; and to consider the area of life-politics. That is, people's expectations for their lives have a pronounced impact on how their lives turn out; leadership can and should affect those expectations in a positive fashion.

In the discussion that followed, participants took exception to a number of points raised by the speakers. For instance, Josef Janning asked if the digital economy would really be as friendly to women as Professor Marin suggested, since clerical jobs, in which women were traditionally overrepresented, are being eliminated at least as quickly as manual jobs, in which men were traditionally overrepresented. Kurt Vogler-Ludwig questioned the means of measuring productivity as well as the proposition that ideas don't die out. In the discussion that followed, participants argued matters of definition; at the end most agreed that while the durability of ideas was not in doubt, their commercial viability might well have a limited time span. Jürgen Turek suggested that the discussion on winners and losers might be leading us in the wrong definition. If we define winners solely as those who have more money or material goods, then we are missing out on a good part of the flexibility that the digital revolution promises to bring. New forms of work, new forms of organization bring with them new definitions of success. Many people may value the freedom and increased flexibility more than additional money, and this aspect should not be overlooked in a discussion on winners and losers. At the end of the day, digitalization present both quantitative and qualitative problems for industrialized societies. On top of normal changes in populations, the forms of work, of education, of social relations, and, lastly, political relations are all affected by pervasive networking of computers. While we are still arguing about the definitions for social science or politics, the digital revolution is changing the premises on which our arguments rest. As all of our participants emphasized, the pace of change is not likely to slow any time soon.

Program

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7.30 p.m. Introduction

Prof. Dr. Werner Weidenfeld
Director, Center for Applied Policy Research,
Ludwig-Maximilian University of Munich

**A world ruled by bits? Digital technology and its
implications for the future of society**

7.45 p.m. Dr. Gabriele Hooffacker
New Media Consultant, Hooffacker & Partner, Munich

**The non-material economy: Digitalization and its
macroeconomic effects**

8.00 p.m. Prof. Dr. Dalia Marin
Professor of economics,
Ludwig-Maximilian University of Munich

**Solidarity revisited? The future of work and employment
in the digital age**

8.15 p.m. Dr. Warnfried Dettling
Book author and essayist for the German weekly DIE ZEIT

8.30 p.m. Discussion

10.00 p.m. End of the Brainstorming

Participants:

Dr. Wolfgang Brühl
Chief Economist, Hoechst AG, Frankfurt/Main, Germany

Jan Dahms
Staff Writer, Reuters, Munich, Germany

Dr. Manuela Glaab
Senior Research Fellow, Research Group on German Affairs,
Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Dr. Jürgen Gros
Senior Research Fellow, Research Group on German Affairs,
Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Dr. Thomas R. Henschel
Director, Research Group on Youth and Europe,
Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Josef Janning
Deputy Director, Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Peter Lökk
New Media Consultant, Hooffacker & Partner, Munich, Germany

Douglas Merrill
Senior Research Fellow, Research Group on the Global Future,
Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Patrick Meyer
Webmaster, Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Jürgen Turek
Director, Research Group on the Global Future,
Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Andreas W. Vichr
Managing Director, Medialab GmbH, Munich, Germany

Kurt Vogler-Ludwig
Head of the Department on Labour Market and Social Policy Research,

ifo Institute for Economic Research, Munich, Germany

Markus Vorbeck
Senior Research Fellow, Research Group on the Global Future,
Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Arnd Wagner
Managing Director, Hoechst Foundation,
Frankfurt/Main, Germany

Prof. Dr. Werner Weidenfeld
Director, Center for Applied Policy Research,
Ludwig-Maximilian University of Munich, Germany

Reiner Zorbach
Director, Electronic Banking and Electronic Commerce,
HYPO-Bank, Munich, Germany

Short biographies:

Presenters:

Dr. Gabriele Hooffacker has been dealing with the new media since the early eighties. In 1987 she founded CL-Net, a computer-based grassroots organization for citizens who wanted to use the internet as a tool for political and cultural interaction. In 1988 she set up her own company, Hooffacker & Partner, which is a consultancy on new media issues. Her works include several publications on the societal dimension of the internet.

Link website: <http://www.hooffacker.de>

Professor Dr. Dalia Marin teaches economics at the Ludwig Maximilian University of Munich. She also is a research fellow with the London-based Center for Economic Policy Research (CEPR). Before being appointed to her current position, Professor Marin taught at the Humboldt University in Berlin. Between 1992 and 1995 she did research at Harvard University, Stanford University and the Massachusetts Institute of Technology. Her fields of interest and research include international trade, macroeconomic growth and research and development policy.

Dr. Warnfried Dettling is an essayist for the German weekly paper DIE ZEIT and author of several books on politics, society and democracy. With a sharply critical eye, he has tackled a variety of topics, from the transformation of the welfare state to the analysis of the Chancellor Kohl's political legacy. His previous engagement in the political life, e.g. as a Director in the German Ministry of Youth, Women, Health and the Family served as a profound foundation for his writing.

Participants:

Dr. Wolfgang Brühl is Chief Economist for Hoechst AG, Frankfurt/Main.

Jan Dahms is a staff writer with the news agency Reuters in Munich. He mainly reports on companies and financial markets.

Dr. Manuela Glaab is a senior research fellow with the Research Group on German Affairs. She has done both theoretical and empirical research on the Western Germans' attitudes towards the intra-German policy between 1949 and 1990.

Dr. Jürgen Gros is a senior research fellow with the Research Group on German Affairs. The history of the German unification process is one of his major fields of work.

Dr. Thomas R. Henschel is head of the Research Group on Youth and Europe at the Center for Applied Policy Research. He has published several books on the attitudes of youngsters towards Europe.

Peter Lokk is the co-founder of Dr. Hooffacker & Partner. He conceives training programs which teach adults to use new media technologies.

Kurt Vogler-Ludwig heads the Department on Labour Market and Social Policy Research at ifo, Institut für Wirtschaftsforschung (Institute for Economic Research) in Munich. He has carried out several research projects, for example on teleworking and the impacts of the information technology on future employment.

(link: <http://www.ifo.de>)

Andreas Vichr has been the Managing Director of Medialab GmbH, a Munich-based company which has become one of the top addresses for online and offline multimedia projects over the last decade. At the end of July he will start his own consultancy.

(link: <http://www.medialab.de>)

Reiner Zorbach heads the Department for Electronic Banking and Electronic Commerce at HYPO-Bank, Munich.

See also the Members of the Project Team and the Homepage of Prof. Dr. Werner Weidenfeld (Director of the Center for Applied Policy Research) on the CAP Website (<http://www.cap.uni-muenchen.de>).