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The challenges of the New Economy*

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Since about the mid-1980s, the technology that has decisively shaped developments in the late 20th century has made it increasingly possible to free many activities from the restrictions imposed by the process of industrialisation. Parallel to this trend, today's understanding of work is shifting away from the idea – which only arose and flourished with the spread of the industrialisation process – which sees work as spatially and temporally determined, continuous employment. Work is splintering into many forms. More and more, boundaries are dissolving between leisure and working time, the place of work and place of residence, learning and working, dependent and independent employment, producers and consumers and between enterprises and sectors. Wherever categories such as working time, working location, performance at work and jobs become blurred, the result is the deterioration of the foundations of our edifice of agreements, norms, rules, laws, organisational forms, structures and institutions, all of which have a stronger influence on our behaviour patterns and systems of values than we are aware. Institutions such as unions, whose actions take as their frame of reference the industrially determined definition of work, are falling victim to a creeping erosion of their traditional "business base" and are being forced to face new challenges.

Three technical innovations, all of which arose in the early 70s, have been decisive in this transition: first the microprocessor dramatically accelerated the fall in computer hardware prices. Second, graphic interfaces and object oriented software have simplified the use of computers. They have now become universally available mass products easily used even by non-specialists. The third innovation is network technologies, which permit a cross-platform connection of digital systems of all kinds. The explosive potential of a combination of these three developments was long ignored by policymakers, and is now finding its expression above all in the proliferation of the

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internet – itself in principle an invention of the early seventies. It was the addition of a user-friendly interaction technology – the World Wide Web (1991) – that led to the final breakthrough, which is now triggering unprecedented upheavals as it cuts an ever-widening swath through all sectors of the economy.

If we regard business organisations as structures for the coordination of work processes and flows of materials, money and ideas, then it becomes evident that the form they take depends primarily on the available coordination technologies. Steam, railways, assembly lines and related innovations made the centralist-hierarchical form the dominant model in the 20th century. Now something is happening comparable to the transition from the agrarian to the industrial society: information and communications technology (IT) is permitting the creation of new company models and value creation processes that are likely to result in a new definition of work in the long term.

”Informatisation” and the rise of information work

World-wide networking of computers makes it possible to separate digital signals from their material carriers and thus to replace flows of goods by flows of data in a growing number of areas: products and processes are being ”informatised”.¹ An example now receiving much attention is the booming distribution of audio data (and, in the near future, video data) over the internet, a process that bypasses large sections of the established value creation chains of the entertainment industry, rendering multibillion dollar infrastructures obsolete overnight. The change does not stop at the audio CD: a considerable number of industrial products can also be replaced: answering machines, for instance, were produced until recently only by industrial companies; today a network-supported service (voice mail) fulfils the same function. In such transitions ”from the atom to the bit” (Negroponte), what was hitherto production work becomes a service, and industrial work becomes information work.

In this context it is common to speak of the road to the service society. But that expression is of little help, since it arouses misleading associations and is more of a hindrance in the attempt to understand the essence of the structural transformation. In reality, services of the traditional kind have yielded only negligible gains in employment during the past fifty years. The classical three sector model – agriculture, industry and services sector – and ”the conventional tools of economic theory are unsuited to register and assess the changes currently happening in the context of

¹ Simon Nora, Alain Minc: Die Informatisierung der Gesellschaft. Frankfurt / New York 1979

informatisation.²”. Indeed, it is a characteristic feature of this trend that it is progressively rendering these distinctions meaningless. More useful, by contrast, is the proposal by March Porat to treat employment involving information tasks - that is to say, "brainwork" - separately.³

For despite - or perhaps because of - increasingly powerful IT, the proportion of information workers is skyrocketing. Automation of routine tasks is raising the intellectual content of the (remaining) work. Increasingly, the ability to understand information, react to it, manage it and use it is needed to create added value. Intangible components and values (information, services, relationships and emotions) and the handling of knowledge now account for an ever-increasing share of value creation. Today half the workforce in highly developed countries lives from activities whose raw materials, tools, tasks and results are primarily information. If current prognoses are accurate, by the next decade four-fifths of all human labour will consist of advice, information, research, development, organisation, networking, management, design and presentation. These will all be typical forms of work in the future. In short: more and more people will be doing work that amounts to converting data to knowledge.

If we designate forms of society according to the activities that apply to the lives of the majority of their members, then we have already been living for some time in an information society. New social and business forms are not completely driving out the old ones: just as the industrial society requires a functional agricultural sector, the information society needs a solid industrial foundation. However, the effects of informatisation on industry are similar to those of industrialisation on agriculture: the volume of work is shrinking dramatically (despite expanding output) and in most cases the quality of the residual activities is undergoing fundamental changes - even the high-tech farmer is coming to resemble an information worker.

It is becoming clear that the information society will not be merely a continuation of the industrial society with a different product range. It will be a society with new rules, structures and behaviour patterns. The key to understanding the consequences of the gradual transition is the insight that the rules that apply to intangible goods, i.e. data, information, knowledge etc. are somewhat different from those for material goods.

² Werner Dostal, *Telearbeit in der Informationsgesellschaft*, Göttingen 1999

³ Marc U. Porat, *The Information Economy: Definition and Measurement*, OT-Publication 77-12, Washington 1977

The New Economy...

Although business with intangible goods (information and services) has long since surpassed all other economic activity, traditional economics has yet to develop terms for the resources on which the value creation process is based, let alone usable models and approaches for explaining this type of (information) economy. Units that comprise the basis for discussions in classical economics - pieces, weight, time, price etc. - fail almost completely to describe information work and intangible goods.

In the USA the term "New Economy" has been gaining currency since the mid-1990s. Numerous synonyms - "Digital Economy", "Networked Economy", "Internet Economy", "Knowledge Economy" (to name a few book titles) - and successful young magazines like "Business 2.0" strongly suggest that the "new" and "old" economies are not new and old economic sectors, but rather areas to which different economic rules apply. In principle it is a market model based on digital networks in which special properties of digitised goods play a central role. Strictly speaking, many rules are not necessarily new; what is new is the fact that they are spreading to an ever-increasing proportion of economic activity at an unprecedented rate of speed.

... with new rules

Unlike material goods, information can be transferred, sold, given away and exchanged without leaving the hands of their original owner. Bits and ideas can be sold and, at the same time, kept: the original and the copy are indistinguishable. Information products need to be developed only once to be usable by everyone - they can be distributed a million-fold over computer networks with practically no additional effort. Intangible goods have only development costs. The marginal costs for copying and distribution of digital knowledge are practically nil.

In an information economy, value is increased above all through the application of knowledge. Value creation in which added value is not created by means of greater volumes differs in essential aspects from material production. In material production, production factors - (manual) labour, raw materials and capital - are used up in the process: to produce more, more of them must be used. By contrast, knowledge is a resource that is not used up; instead, it actually increases in quantity through use.

The principle form in which knowledge flows into products of all kinds today is software. Since production processes are becoming more and more software-intensive, material products,

too, are increasingly taking on characteristics of software. Where processes are largely controlled by computers, the costs for variety tend towards zero. This turns the rules of mass production upside down. In the era of mechanisation, increasing production runs led to lower unit costs. In computerised production, on the other hand, a custom-made item costs negligibly more than its mass-produced counterpart. Indeed it is not unusual for customer-specific production to be even cheaper. A case in point is BoD (Books on Demands): publishers use computer-controlled machines to produce single copies of books as orders arrive, and no longer need to produce large print runs to build up inventories. The first shops have appeared on the scene where computer-controlled machines produce cosmetics to customer specifications, make custom-tailored clothes or assemble furniture to order. Instead of transporting finished goods, often over great distances, companies can manufacture products in decentralised "technofactories" located where the products are needed. The "factory" will not produce finished objects; its "output" will be manufacturing programs that are electronically distributed. This trend will be intensified by the fact that computer networks are making possible an unprecedented degree of market transparency. Consequently, competition on the basis of price alone is bound to be ruinous in the long term. In short: mechanisation led to mass production; informatisation will administer a fatal blow of many (but not all) types of mass production.

The "manufacture" of intangible values cannot be driven like the production of material products - here excellence cannot be replaced by quantity. It is quite reasonable to compare the development of complex information products with the creation of other products of mental activity - writing a novel, for instance. In such an endeavour the "broth" does not improve, as a rule, as the number of "cooks" increases - on the contrary. Wherever "brain running time" and inspiration replace the running time of machines as decisive factors, concepts of productivity based on quantitative parameters will break down (as will any approach to redistributing work based on such concepts). With information products, what counts is the quality of the ideas that go into them and not the amount of working time invested - just as a novel is not judged by the number of pages or writing hours. It is then not faster machines, but better qualifications, communication and motivation that lead to higher productivity.

Material things are subject to immutable laws of conservation: it is impossible to consume more than is produced. Information is different: we all absorb more information than we pass on. So far, no limits to growth in production of intangible goods have appeared. The more people that process information and the more productive the IT systems become, the greater the quantity of raw materials and tasks that are created for other knowledge workers - work creates above all

more work. Thus increasing productivity does not lead to shorter working time for many knowledge workers. On the contrary - it results in blurred boundaries between work and leisure time. Regardless of whether they are at work or not, people are getting busier - mainly with information.

Network effects and the economy of attention

The value of information products is measured by other rules than those that apply to the value of material goods, where there is a direct link, for instance, between scarcity and value. For software and many information products it is - albeit not always - exactly the opposite. Their value increases as they become more common. The faster a computer program spreads, the more likely it is that it will become a (de facto) standard, providing a basis for follow-up business.

Networking effects which increase the value of a product with each installed unit can quickly lead to the establishment of lucrative monopolies, as demonstrated by Microsoft and Intel. For this reason more and more IT companies are adopting strategies of giving away their products. These free products are a quick way of achieving a critical mass of customers. Once a standard has been thus established, it becomes extremely difficult for the competition to gain access to the market. Marketing complementary services is then all the more profitable. Prime examples are companies like Netscape and RealNetworks, who used free products to build market shares of 80 percent and soaring market capitalisation. Mobile telephones and PCs are also being given away by the hundreds of thousands in the USA. This is often simply a new version of the old AT&T model: free telephone connections make it possible for customers to use a new communication service. What is new is the speed: there have been cases where world markets and monopoly positions were conquered via internet within a few weeks.

Free net-based services of all kinds have since appeared on the scene, along with the first internet providers who actually pay customers for time spent online instead of charging them for it. This type of advertising-driven business model – comparable to free television – indicates what is actually becoming scarce and expensive in the information economy: attention. Characteristic of the information society is that information is not taking on a special value. Its characterising feature is the flood of information that people can no longer cope with. The real bottleneck is the capacity for taking in and processing the wealth of signals, symbols and stimuli. Since information that receives no attention has no economic value, its value is not intrinsic, but depends on the resource that it makes use of: information uses the attention of its recipient. If IT makes it increasingly

possible to provide more information than we can hope to take in, then the scarcest of all factors in the information society will be attention, for attention - like time - cannot be increased in quantity. The greater the flood of information, the more the factor of attention will be valued and rewarded. TV ratings, circulation figures, numbers of site visitors, accesses or citations are measures of "attention revenues" that can indeed be converted into ready cash. Soaring advertising budgets and fees paid to stars, and exploding values of brand names or popular internet pages are just a few indicators that the new theory of the "economy of attention"⁴ has a basis in reality. Here are two examples: the American basketball star Michael Jordan is paid approximately \$20m for advertising sports shoes for Nike, an American company - about twice as much as the twelve thousand Asian seamstresses who make these shoes. And the cable TV company AT-Home paid \$6.7bn for the internet search engine Excite. By way of comparison: the American automotive group Ford paid \$6.45bn for Volvo.

New value standards

According to traditional economic theory, the value of real goods is based above all on unit costs. Companies have traditionally been valued according to their balance sheets and their holdings of cash and inventory. Financial transactions, on the other hand, are valued on the basis of the anticipated potential for future earnings.

In reality, however, markets for what economists call "real goods and services", have begun acting more and more like financial markets. Especially in the New Economy, the market capitalisation of companies is now routinely an enormous multiple of their book values - a trend that continues to gain momentum. Thus stock markets, as a sensitive indicator for trends and competition factors, provide an additional indicator for the rapidly expanding significance of knowledge in value creation.

Almost symbolic of the transition to the information society is the rise of Microsoft to become the world's most valuable company. The market capitalisation (> \$450 bn) of this relatively young company now exceeds the combined worth of the twelve automotive groups with the largest world-wide sales (!). An old industrial giant like General Motors, for instance, with a wealth of expensive facilities, revenues ten times those of Microsoft and almost thirty times as many employees has only one-tenth the market value of Microsoft.

⁴ Georg Franck, *Ökonomie der Aufmerksamkeit*, München/Wien 1998; Michael H. Goldhaber, *Die Ökonomie der Aufmerksamkeit*, in: *telepolis*, 4/5 1998, S. 117-136

If Microsoft employees were to stay away from work starting tomorrow, the result would be the biggest stock market crash in history, for the company's book value is negligible: a few office buildings and computers. This scenario shows that the employees, the so-called human capital, are the only important capital in the New Economy. Raw materials, machines, energy, property and tangible assets - the entire range of traditional production and competition factors are losing all importance - and with them the economic theories based on them.

The decade drawing to a close has been marked by unprecedented upheavals in the list of the "Global 1000" (company values by market capitalisation). Whereas Japanese corporations held seven of the top ten places in 1989, by 1999 not a single company from Japan remained in this elite group. Business Week's laconic comment: "What happened in the meantime: the internet." Among the 50 most valuable companies in the world are 19 firms that profit directly or indirectly from the internet. Newcomers like the network company Cisco (\$174bn) needed only a few years before overtaking established companies like DaimlerChrysler (\$86bn), still Germany's biggest company in terms of sales. Capital investors are affirming the view expressed years ago by Alvin Toffler: "The key event of the 20th century is the fall of matter."

Time competition

The price that a piece of information (or a knowledge product) can command on the market does not depend on the working time invested in it, but on the exclusivity that it possesses for a short period - until there are enough copies or competing products. Since information can be replicated, modified and distributed faster and faster with the help of computers, this profitable time interval is constantly shrinking.

In the New Economy, company size is losing its importance, since thresholds to markets are very low. Individuals can supply global markets with intangible products via networks just as well as large companies, since there is no need either for company-owned production facilities or sales structures. The fairy-tale success stories of the new e-companies - such as Xoom, eBay, Yahoo, Amazon, Go2Net - are highly instructive. These companies, some of them just a few months old, already have world-wide sales of tens or hundreds of millions of dollars and growth rates of several hundred percent.

To the extent that classical competition factors and physical distance diminish in importance, competition will be reduced to time competition. Size or costs will no longer count; instead, creativity and flexibility will be crucial. If it was once the large firms that ate up the small fry, the

future will see fast companies overtaking their slower rivals. The key indicator will be time-to-market. Sometimes just a few weeks can make the difference between a resounding success and a dismal failure. Consequently, it is not unusual for the creators of digital products to endure phases with 100-hour working weeks. Since software now plays a key role in all segments of the value added chain, even in "old" industries such as car manufacturing, it is becoming more common here, too, for development work to go on around the clock and around the globe.

New organisational forms

Thus with the spread of IT, an economy is springing up that is based more on the production of ideas than its predecessor, which was founded on the principle of manufacturing objects at the lowest possible cost. Consequently the task and structure of organisations is undergoing a transformation.

The ability of an organisation to learn is becoming the key competition factor. This refers to its ability to convert available knowledge as quickly as possible into new knowledge, i.e. ideas and innovations. Innovations, however, require a radically different environment, completely unlike anything that can be provided under management forms and company structures introduced 125 years ago to organise the production of goods efficiently.

In the hierarchies typical of the industrial society, innovative ideas constantly encounter obstacles, since an essential means of exercising power in this organisation form is the monopolisation of information. Since new ideas always represent a threat to old ideas and, consequently, to existing power structures, innovations that are good for the company but bad for management are usually suppressed or at least impeded: "Creativity is basically foreign to the organisation. Organisations actually thrive on the tendency to ignore creativity."⁶ We have all seen it: In bureaucracies there is always a great deal of talk about innovation, but there is often no real desire for change.

The ponderousness of hierarchical organisations is primarily due to the fact that individuals tend to direct more loyalty towards their immediate superiors than to the organisation as a whole. In his book, "The Theory of yes men", the American economist Canice Prendergast demonstrated many years ago that "... organisations where promotion and remuneration of employees depends on assessments by their superiors have little chance of survival in a rapidly changing business

⁵ Reinhard K. Sprenger, Die Idee der Macht oder die Macht der Idee ?, in: brand eins, 1/99, S. 12-13

climate.⁶ Hierarchies have a corrupting influence on the human spirit, for they encourage opportunism as a behaviour pattern guaranteeing success that is rewarded very quickly with promotion: "It's better to be wrong with the boss than right against the boss." The most convincing evidence of the resulting rigidity is the fact often observed in hierarchies that the top levels lose contact to reality sooner or later, because the organisation is eventually deceived by its own self-image – which in not a few cases leads to its demise. Abundant examples from the IT sector include IBM founder Thomas Watson, who estimated in 1943 that there might conceivably be a market for as many as five computers, or Ken Olsen, the head of the now defunct DEC, once the world's second largest computer maker, who declared as late as 1977 that there was no reason for anyone to have a computer in the home. Similar cases, such as Heinz Nixdorf – who kept dismissing PCs as toys until it was too late to save his company – could be listed almost indefinitely. If top management in the highly innovative IT industry displays a tenuous grip on reality, it can be safely assumed that false assessments of this kind occur even more often in the boardrooms of organisations and sectors less open to innovation – such as public authorities, political parties and associations.

Where human beings are reduced to the content of a job description or a supervisor's orders, then the very ability that will be decisive in the future will lie fallow: the ability to deal with the unexpected. A characteristic of the New Economy is thus the gradual departure from the organisation form that still prevails today – the functional hierarchy. This also means the disappearance of one of the great demarcation lines of the industrial age: the sharp distinction between those who make decisions and those who carry them out. The system of orders, obedience and supervision is being replaced in more and more areas by post-industrial forms of cooperation in which knowledge and individual skills can more effectively reach their potential. Instead of adherence to duty, what is measured and assessed is success – a method that is as effective as it is ambiguous, and raises many new questions, since the old regulatory mechanisms no longer have much effect.

In the New Economy, growth depends primarily on efficient flows of information between people. This means that the way people deal with each other has a far greater impact on business success than technology or collective agreements. As a result, the old functionally and hierarchically structured organisations are being replaced by networks of much smaller units with greater autonomy. This organisation form has stronger learning capabilities, since communication does not have as many barriers – i.e. departmental boundaries and hierarchical levels – to

⁶ Canice Prendergast, A Theory of 'Yes-Man', in: American Economic Review, Sept. 1993, S. 757–770

overcome. In the place of rigid lines of communications, an open market for information and ideas is taking shape in which all kinds of direct communication – formal and informal – are possible without distractions of rank or territorial fears.

In the future all organisations must be prepared for a constant succession of projects, each of which demands a new combination of knowledge, skills and experience. High flexibility cannot be achieved through fixed positions in the staff hierarchy; what is needed are constantly reshuffled teams that act autonomously, behaving to a great extent like entrepreneurs. The company of tomorrow will often be little else than a small core of a few permanent employees who establish links to suppliers and external specialists and use these links to build a network for producing a common product. The term "virtual company", coined at MIT in the 1980s, has become the accepted term for this kind of network-like value creation community. "Virtual" means that all essential features of an object are present except the object itself. What appears to outsiders to be a company is in truth a fabric of relationships woven between highly diverse suppliers that is constantly forming and dissolving in response to tasks and market needs. A growing number of companies that achieve multimillion dollar profits with just a handful of permanent staff serve to illustrate where the trend is going: from R&D to production and sales to after-sales service, all responsibilities are passed on to a network linking every possible type of supplier. Only strategically significant and lucrative core functions such as controlling the network, managing the brand name and possibly the product design remain in the company – everything else is "outsourced".

Tom Malone of MIT coined the term "e-lance economy" for the organisation form of the future. This refers to networks of electronically connected freelancers as the backbone of a new way of working and doing business.⁷ The power of such groupings is illustrated by the rise of the PC operating system Linux that was created as the joint effort of freelance programmers all over the world and now poses a serious threat to the Microsoft monopoly. A hierarchically organised major concern like IBM would never have been capable of this achievement.

Apparently running counter to this trend, the current wave of mergers seems to suggest that companies are increasing in size. But beneath the surface of these often spectacular processes a countertrend is in evidence – from the point of view of the labour force: 25 years ago a fifth of all working Americans were employed by a Fortune 500 company. Today this quota is well below one-tenth. The largest private employer by far in the USA today is the temping agency

⁷ Thomas W. Malone/Robert J. Laubacher, The Dawn of the e-lance Economy, in: Harvard Business Review, 9/10-1998, S. 145–152

Manpower. This, too, is an indication of the enormous efforts of companies to replace fixed costs by variable costs in order to be positioned to react to the breakneck pace of market changes.

New definition of work

Industrial production requires the transport of the human production factor to the location where goods are produced. Computer networks, by contrast, bring the production factor - information - to human beings. For many forms of information work, there is no longer any need to be cooped up in "barracks": work again becomes what we do and not where we go. The rigid regimen of time and place – a fundamental pillar of industrial working culture – thus becomes dispensable. Like every transition, this development has its pros and cons: Gil Gordon, one of the pioneers of telework, puts it succinctly: "The good news is you can work anytime, anywhere. The bad news is you can work anytime, anywhere."

As the new company models proliferate, forms of work are spreading that we still refer to as "atypical": part-time work, temporary work, limited contracts, telework, contract work and other forms of (pseudo) entrepreneurial work. The proportion of so-called "normal employment relationships" has already fallen to two-thirds of the workforce. Experts estimate that it will not be long before only half of the workforce will be working full-time under "normal" conditions, so that what was once the rule will soon be the exception.

Although industrial production continues to rise in absolute terms, its relative importance is declining. Like agricultural work in the past, activities close to industry will shrink in the long term to a residual quantity. The major leap in productivity is yet to come in most industrial sectors, since the true potential of IT has so far gone unrecognised in many areas. The situation is reminiscent of the arrival of electricity. Initially it was used only to replace steam engines through electric motors in factories, so that the productivity gains were negligible. Not until the 1920s was the full potential of this new technology understood. The insight led to the establishment of completely redesigned factories in which production grew at explosive rates. For the computer the situation is similar. For a long time it was seen as a machine for performing existing tasks more quickly. For many years, especially during the era characterised by centralised data processing, the "productivity paradox" was a frequent complaint: soaring IT costs actually led to falling productivity, especially in offices. Only now are more and more managers beginning to see that with the help of IT, operational processes can be completely restructured, as long as the computer is no longer treated as a programmable machine, but rather as a means of helping people work together.

Most tasks that are so routine that they can be measured will sooner or later be passed on to technical systems. What remains are tasks that are for the most part beyond the reach of traditional forms of "regulation – the paradigm of the industrially defined working society"⁸. Consequently, incomes in the information economy are no longer proportional to the working time invested. Instead they depend on the skill, originality and speed with which new problems are identified, creatively solved and convincingly communicated. Parallel to this trend, conventional career paths, formal qualifications, standardised vocational profiles and fixed job descriptions are gradually losing significance. The concepts in the new era corresponding to energy, specialisation and interchangeability in the industrial age are time, learning and adaptability. Increasing inequality of pay distribution is a widely observable consequence of this development.

In the information economy, trade is possible beyond all boundaries. This applies not only to goods, but also to labour. Work is becoming a good that can be redistributed at ever-decreasing time intervals, a fact clearly demonstrated by the many world-wide internet auctions of labour(ers). Call centre employees in Dublin compete (or cooperate) with their American colleagues, as do programmers in Erlangen with their counterparts in Seattle, Bangalore or Moscow. For activities where the location of workers is no longer important, national boundaries, regulations and institutions are losing influence, especially as linguistic and cultural barriers become more and more porous.

In short: work is still with us, but the stable job is not. Work will be understood in the future more as what a person does, and not as something a person has. The attitude to work in terms of the traditional notion of "a job" will have to be abandoned. It is being replaced by thinking in terms of skills that enable people to earn a living.

"The system of lifelong paid employment is probably just an episode in human history. The package that was wrapped up at the beginning of industrialisation – social security and social integration only on the basis of dependent employment – is now coming unravelled."⁹ This will require a remodelling of society, actively promoted by a variety of social support structures. What is not needed are efforts to save an obsolete model from extinction. As forms of work and its remuneration are transformed and the proportion of electronic, almost undetectable transactions continues to grow, state systems of taxation will also be eroded. This may result one day in another achievement of industrialisation being called into question: the linkage of income, taxes and

⁸ Gerd Mutz, Die Organisation gesellschaftlicher Arbeit in der Neuen Arbeitsgesellschaft, in: W. Fricke (Hrsg.): Jahrbuch für Arbeit und Technik, 1999, S. 70-90

⁹ Dostal, Telearbeit a.a.O.

social insurance contributions to production. If it is no longer possible to transform work done for the good of society – whose existence is undisputed – into paid employment of the type still in existence today, then we will have to examine new mechanisms for a fairer distribution of the wealth created by means of increasingly productive systems.

New Economy in the New World

In view of this outline of the New Economy we can surmise that a confusing (working) society awaits us behind the threshold to the new century. Many familiar behaviour patterns, habits of mind and values that arose under industrialism will lose their validity. Against this backdrop, the question remains how our top problem, mass unemployment, can be solved and what this upheaval will mean for the future of trade unions.

To see what lies ahead and what ought to be done, it is still always worth looking at the USA. But it is important not to distort this view with overly simple explanations, such as the claim that the low unemployment rate of 4.2 percent is mainly due to cheap "McJobs". The fact is: in gross terms, 45 million new jobs were created over the past 25 years in the USA as compared with just 5 million in the (larger) area of the continental EU. About two-thirds of the jobs created in the USA in the 90s are in the higher income bracket, and are made up primarily of knowledge-intensive information work in or near the IT sector. This is where the income was created that yielded the additional demand for low-income services.

The sustained period of economic vitality with 4-6 percent annual growth is the result of highly diverse developments, however. While a few regions in the USA report consistent negative trends and dire poverty, other parts of the country (e.g. Seattle, Austin, Denver, Silicon Valley) are achieving growth of 20 percent and more. These compact growth regions that carry the success of the entire country are situated for the most part in areas that offer a high quality of life. The prevalent form of work has come to be termed SOHO (small office, home office). The number of teleworkers has now reached 16 million. Here we see consequences of technology that will make their mark on the coming century: in each state, regional concentrations are forming that operate in a world without borders. Whether or not countries flourish, will not necessarily be due to their land mass and mineral deposits, for the future key industries of all countries will know no borders. While the production of physical goods will move even faster to where markets are, information work and capital will move to where knowledge is – for example to Silicon Valley.

The US government is currently planning to use sizeable deficit surpluses to repay the entire national debt (5.5 trillion dollars) accumulated over 220 (!) years, by 2015 – a potential starting point for social benefits beyond European politicians' wildest dreams. In the end, this phenomenal success is derived above all from the fact that the USA have surged ahead of all other countries in the race towards the New Economy. The three key innovations mentioned in the introduction have made a decisive contribution here. The growth sectors and key sectors of the world economy – software and computer networks – are clearly dominated by American companies today.

Since the competitiveness of every economy is increasingly dependent on the number of people who have access to information and are able to utilise it, a look at the facts gives pause for thought: the contribution of IT to GDP, the per capita investment in IT, and the market penetration of PCs (57 percent) are twice as high in the USA as here, and the percentage of internet users (27 percent) is three times as high. Even more significant: the gap is actually widening, for the annual growth rates in the USA are also twice as high as ours. The entire IT business is achieving double-digit growth rates and is making an essential contribution to growth as a whole.

Particularly revealing is the comparison in the USA between the information economy and all other industries: here a rapidly widening prosperity gap between the new and (shown in parentheses) old economies is apparent: the number of employees is growing at an annual rate of 4 percent (2 percent), and productivity is increasing at a sizzling pace of 35 (!) percent (2 percent); the income index (average weekly wage, 1988 = 1) is now 1.12 (0.955). Although the old economy still provides employment for at least four times as many people, the New Economy already yields 48 percent of all corporate profits. Business Week sees a parallel to the transition from the agrarian to the industrial society and fears that if the divide continues to grow, "enormous political tensions world-wide between the losers of the old and the winners of the New Economy."¹⁰ The current strife among social democrats is a foretaste of what is to come.

Of vital importance are not so much the comparatively small number of computer specialists – much more significant is their effect on the rest of the economy. Forrester Research and other experts predict that US companies will be achieving \$1.3 trillion in sales in the business-to-business sector via the internet by 2003, and that about half of all business activity will be handled via internet within ten years. This low-friction, fast means of carrying out transactions yields considerable economic advantages for the companies involved. Important here above all is the "content business", the computer-assisted trade in cultural products, which will completely

¹⁰ Michael J. Mandel, The Prosperity Gap, in: Business Week, 4. Okt. 1999, S. 126-132

overshadow all other sectors in the New Economy. Even today the largest export sector in the US economy is not the aircraft industry, computers, or cars: it is the entertainment sector with films and television programs. Here, too, digital networks and satellite technology have long since acquired a key role.

In view of these developments it is understandable that the United Nations has emphasised technology in its most recent development report and, on the title page, points out the unequal distribution of internet users in the world as a key problem of the future: North America, which accounts for just 5 percent of the world's population, boasts 50 percent of all internet users. South Asia, with 20 percent of the world's inhabitants, is home to just 1 percent of the internet community. The USA has more computers than the rest of the world put together. For the average Bangladeshi, the purchase of a computer would cost eight years' income, whereas the outlay for an average American is just one month's salary. The extensive statistical material presented by the UN impressively demonstrate that world-wide prosperity and development opportunities will depend to an ever-increasing extent on IT penetration and its effective utilisation.¹¹

Conversely, the evidence makes plain that a lack of IT specialists can have disastrous consequences for an entire economy. And this very issue is one of our central problems: in Germany there are currently 70,000 IT job vacancies. The total shortfall across the EU is 500,000. "For more and more companies, growth is being impeded only by the shortage on the labour market"¹² This demonstrates in exemplary fashion that the persistently high unemployment in the "Old World" is primarily a result of the failure by IT policymakers and business leaders in this country to give due attention to IT back in the 70s and 80s. Thanks to well-organised special interest groups, Europe spent years investing mainly in the past (e.g. agriculture) instead of the future, with the consequence that not a single computer manufacturer is still in business today in the entire European Union.

In the Old World: Industrial policy instead of structural innovation

The European and specifically German science and technology policy efforts (S&T policy) often failed to achieve the desired effects because it is based in principle on a questionable notion of competitiveness and an outmoded model of the innovation process. Innovation is not a technical

¹¹ UNDP, Bericht über die menschliche Entwicklung 1999, Bonn 1999 (<http://www.undp.org/hdro/report.html>)

¹² Reinhard K. Sprenger, Idee der Macht a.a.O.

process, but a complex social process where the crucial factors are economic interests, social and in-company forces, cultural norms and values along with other, so-called "soft" factors. Innovation entails more than new products and processes. A key prerequisite is a new mode of behaviour – for scientists, business leaders and policymakers. But instead of nurturing social, organisational and structural innovations - the essential prerequisites for successful technical innovation – our S&T policy has so far been strongly technology-centred and fixated on capital-intensive sectors and spectacular prestige projects. The basic problem: "Innovation is a microeconomic process, but the state is interested only in the macroeconomy."¹³ For decades, the result was that the state invested mainly in technology instead of people. Hardware was sponsored instead of software. This proves: "State organisations are inherently conservative. In the end, most major state-sponsored research projects ended in failure."¹⁴

Under the massive influence of corporate interests, it is not unusual for state-sponsored research to deteriorate into barely disguised subsidies, thus helping in many cases to perfect and stabilise established industrial structures. Efforts to preserve structures and jobs – in particular certain variants of what is revealingly referred to as "industrial policy" – often achieve in the long term only what they were designed to prevent in the first place: increasing unemployment. For the question of whether the employment balance of new technologies is positive or negative depends mainly on how quickly and thoroughly they succeed in changing economic structures. Under global market conditions, the innovative vanguard profits from technological change, while the negative impact of rationalisation often outweighs all other effects for the laggards.

When well-organised interests are present, necessary structural changes are often delayed, because those who would profit from change cannot assert themselves nearly as effectively: after all, most jobs of the future will be created in companies that do not yet exist. The 25 largest European companies were already large in 1960; at that time, one in three of today's top 25 American companies did not yet exist. Most companies now instrumental in driving US economic growth, some of whom are counted among the world's most influential companies, such as Intel and Microsoft, were founded during the past 25 years.

During periods of technical change, there is much lobbying on behalf of the present, while the future has no pressure group. It is during such phases that the unions can add their voice to the debate. Taking an extended understanding of innovation as a starting point, they can act as

¹³ Gero von Randow, Politik in der Zwickmühle, in: Die Zeit v. 26. 8. 1999, S. 29

¹⁴ Interview mit Joel Mokyr, in: Die Zeit v. 26. 8. 1999, S. 30

advocates of future work and in this way broaden their own basis in the long term.¹⁵ A similar argument applies to the second major area of work in the future, offering by far the most long-term opportunities for skilled trades and crafts: the constantly expanding, many-faceted area that owes its existence to the simple fact that our natural resources are limited: our environment. It, too, lacks the lobby it deserves.

The innovative potential of a country is determined by the standard of education of its people. Bearing this in mind, "Initiative D21", launched by German companies, reveals a key deficiency: the truly catastrophic situation in the German education system – measured on the basis of the requirements of the future working world. Constructive proposals for encountering structural deficits and the shortage of specialists are being developed under the action program developed by the federal government to address the problem¹⁶ and a cooperative programme set up by IG Metall and the IT industry association within the "Buendnis fuer Arbeit" (Alliance for work) (www.igmetall.de).

Transformation of industrialism

In addition to the vital issue of qualification, the EU Commission placed special emphasis on two other matters in its report to the Council, "Employment opportunities in the information society" (1998). These two concerns are of momentous importance for the future of the European economy and the German economy in particular: "Development of corporate culture" and "Promoting organisational change".

In recent years, international comparative studies examining the UE, Japan and the USA have repeatedly shown that German companies often lag far behind in their ability to innovate, a circumstance resulting mainly from internal factors such as organisational structure, management style and corporate culture. In short: it is apparent that the very factors credited with the past successes of the German economy, i.e. the perfecting of industrial forms of work and organisation, now threaten to become a handicap in a world where the game is played by new rules.

In a presentation, Martin Baethge named the central problems: although the potentials of the new technology cannot be fully exploited using the old forms of work, the industrial working model persistently clings to life, because the institutional arrangement agreed by the proponents of

¹⁵ DGB-Bundesvorstand, Initiative Zukunft der Arbeit – Unternehmen der Zukunft, Düsseldorf 1999

¹⁶ Bundesregierung, Aktionsprogramm Innovation und Arbeitsplätze in der Informationsgesellschaft des 21. Jahrhunderts, Bonn, Sept. 1999

corporatism – the child of industrialism – was extraordinarily successful and is extraordinarily powerful. Our economic problems are rooted in an obvious learning difficulty of German society, which is deeply rooted in the norms, modes of behaviour and routines of industrialism. ”In the ”Alliance for work”, corporatism must prove that it can manage its own transformation into the post-industrial world ”.¹⁷

However, employment policy concepts currently presented in the ”Old World” often display in their essence a view of the economy whose thought patterns can be traced back to the world of industrial manufacturing and distribution of material goods. But under the changed conditions of the information economy, any attempt to solve today’s problems with yesterday’s perceptions is a game played on a shrinking playing field. Anyone who plays a game without noticing that technical developments have changed the rules is doomed to lose, regardless of the strategy adopted. Prosperity and social stability require economic success, which in turn depends more than ever on wise handling of technology. The many-sided possibilities for distributing the available work do indeed help to create additional work (jobs) where people can earn a living. What we need in the long run, however, is new work and a shift in attitudes towards new forms of work. New work does not arise through redistribution, but rather through innovation.

Unions undergoing structural change

It was Marshal McLuhan who best described the radical way in which new media shape a society. He demonstrated great prescience when he observed that their significance is nevertheless always overlooked initially. His works are now experiencing a renaissance: ”The spread of new media always results in the decline of social forms and institutions and the birth of new ones ... especially the segments of society that recognise too late the long-term effects of the new medium have had to pay for this with their demise.”¹⁸

From time to time it helps to look back to see more clearly what lies ahead. Technology assisted in the birth of trade unions: technical innovations gave rise to industrial forms of work that in turn spawned new forms of solidarity-based organisations. If new value creation processes and company forms take hold as a result of the rise of IT, and the industrially defined working culture subsequently declines in importance, then the traditional foundations of trade union work will crumble. This far-reaching challenge – which can definitely be seen as having existential

¹⁷ Martin Baethge, Transformation des Industrialismus, Vortragsmanuskript, Bonn 1999

¹⁸ Marshall McLuhan, Understanding Media (1964)

dimensions - requires a fitting response that will not be found in day-to-day trade union policy or on the level of organisational mergers. By attempting to escape imminent collapse through mergers and extensive cost-cutting programmes, organisations risk failing to understand the deeper causes of their problems and lose valuable time for the truly necessary tasks: to be able to play a game redefined through new technologies, many institutions in our society, including unions, will have no choice but to redefine their roles, self-images, organisational structures and methods of operation.

It is important to be clear on one point: there is no alternative to accepting the changed economic circumstances resulting from technology: "If we do not actively adjust our institutions, the technology, with the support of market forces, will simply blaze its own trail".¹⁹ In the "global village" (McLuhan), unemployment and reductions in social programmes are a consequence of neglected structural change. Attempts to force the New Economy into the temporal and spatial corset of industrialism all have the same result: those who try this rob themselves in the long term of their freedom to shape events because the very thing happens that they are trying to prevent.

It is not the structural change in the working world that is causing members to leave the unions: it is the unions' inability to adjust rapidly enough to structural change. In the past decades the number of employed persons in Germany has not decreased, but increased continually (until 1992). As with every company that loses market share, the decline in membership is in the final analysis a reflection of a lack of leadership.

The way unions have reacted so far to structural change illustrates the close correspondence between the culture of an organisation and the internalised recipes for success based on its past. As in many companies, most attempts by unions to reform their own organisations have tended to bring about the opposite of what was intended: they simply perfected the existing (obsolete) conditions because they entrusted the organisation of their own transformation process to those who had played key roles until then.

Owing to the origins of the unions, their internal organisation corresponds to that of a classical Taylorist factory for mass production: control is exercised from the top to the bottom of the power pyramid. Those at the bottom do the work that is planned at the top. As long as markets and membership structures remained stable and easy to manage, it was possible to operate successfully on this principle. Since then, however, the environment has changed radically. Unions are increasingly seen by (potential) members as service providers. But service providers require a

¹⁹ Uwe-Jean Heuser, Netze und Inhalte – Mythos Informationsgesellschaft?, in: Franz Lehner (Hrsg.), WertSchöpfung – Maßstäbe einer neuen Ökonomie, München 1999, S. 204-209

completely different structure to succeed, for here it is not the top levels, but rather the people with direct contact to customers who have access to the most valuable information. The task of the leadership is no longer to plan, give instructions and supervise. Instead, their role is to provide support and coordination.

This structural dilemma – the tasks of a (political) service provider, but the internal structure and culture of a factory organisation of bygone days – results in a widening gulf between decision-making powers and knowledge of the business. Many companies with similar problems have successfully demonstrated how to come to grips with them through structural changes. They have also shown, with the help of modern IT, how to increase flexibility substantially, mainly by eliminating intermediate hierarchy levels – the so-called "laming layers". By contrast, attempts by unions to modernise mainly with the help of IT often had fatal consequences, since they strongly favoured IT systems that were compatible with their prevailing information culture. For instance, in the early 90s IG Metall installed a ponderous data processing architecture dating back to the 70s. Instead of flexibilising the existing organisation, the system fossilised it. Since communication is the life-giving elixir of any organisation, these errors in judgement are among the most disastrous – and expensive – blunders made by unions in the past decades. Compared with the modern knowledge management systems of consulting companies such as KPMG, for instance, the working methods and IT infrastructures of the unions are one to two decades behind in terms of technology and organisation. There is a great deal about the unions that has more in common with a royal household than a modern consulting organisation – although unions in the broadest sense of the word are consultants for their members. The anachronistic process organisation and structure of the unions are as well suited to the ever-faster changing "weightless economy" (Anthony Giddens) as an armoured tank to the ocean – anyone trying to set sail with them is sure to sink.

To avoid falling victim to one's own industrially defined organisational structure, it is vital to eliminate internal communication barriers to foster organisational learning ability. Instead of merely moving boxes around the organization diagram, what is needed is the development of an open culture of trust in which the key resource of information is not a means to power but rather a raw material for work. Unplanned "organisation development", by contrast, conducted on the principle, "Big departments swallow small ones", serve to strengthen only those who have made a major contribution to the situation that needs changing. What can be even more disastrous is the currently trend being promoted under the pretext of cost-cutting, and made palatable with buzzwords like "concentration on core business". The danger is that it will lead to a retreat to classical industrially-defined concepts, tasks and clientele that are losing their effectiveness and

significance under the conditions of the New Economy. For unions, too, the motto applies: the danger is in success. What counts is what you end up with. Much of what brought success and strength in the past proves under new conditions to be an obstacle, weakening and hindering the organisation.

Not least among the indications of regressive thinking within trade unions is the fact that some have cut back the very areas whose function is to detect trends and provide information on them. At the same time, these units acted as instruments for exerting political influence with a strong orientation towards a long-term impact. When unions withdraw from active involvement in public and private S&T policy and cease to be a critical voice accompanying this policy, they also walk away from the places where route plans for the society of the future are being mapped out. Those who throw away their eyeglasses while standing at the brink of the cliff should not be surprised at their sudden descent; those who do not address technological issues must grope their way blindly towards the future. Organisations that set political priorities more on the basis of internal power structures and accountancy concerns than real needs and long-term goals are only accelerating their own downfall. While unions such as DPG, HBV and IG Medien have succeeded in recruiting members even in the new working world with the help of a series of IT-related projects, IG Metall is now further than ever from the widely admired innovative initiative taken at the Future Congress in Oberhausen (1972). Even the trailblazing initiatives of regional innovation consulting for employees (IGM-IBS, 1979) have since been almost completely abandoned. Typically, American unions, in particular the AFL-CIO, have in the meantime begun to see this very approach as a promising way of recruiting new members from the New Economy.²⁰

In all areas of political life, the prevailing conditions and scope for action are increasingly dependent on technical conditions: in all policy areas - collective bargaining, economics, operations, training, social matters or youth – there is hardly an issue in which contents, methods, goals and the conditions for attaining them are not influenced by technology. To preserve the ability to take political action it is more and more important to be able to assess the potential and consequences of technical trends at an early stage to guard against possible surprises and, if required, to be in a position to steer against them. To be capable of solving problems we must first understand them. Otherwise we run the risk of acting counterproductively – as illustrated by a number of currently popular approaches to employment policy. It is important to learn from the fatal errors of the past: entrepreneurs and employees, associations and unions must – even in times

²⁰ Stephen A. Herzenberg u.a., *New Unions for a New Economy*, in: *The Democrat*, 3/4 1998, S. 8-12; David F. Milleker, *Die Krise der Gewerkschaften und ihre Ursachen*, Manuskript, Frankfurt 1999

of increasingly scarce resources – focus more attention on securing the future, and especially on the many-faceted issues surrounding innovation and technology, whose significance will grow steadily.

Whether the new century will result in the continued decline or the transformation of the institutions of industrialism remains to be seen. In any case, as the classical company dissolves and social links shift from the place of work to the sphere outside it, new forms of community-oriented action and new sources for shaping personal identity will develop. People practising the new forms of work are beginning to express a new need for advisors and representatives of their interests, for in the information society there will not be less demand, but rather different needs for social security, communication and a social "home". Unions can play a role here if they shift their emphasis away from universally applicable, collective regulations and begin to offer more flexible services which are closer to the individual needs of individual members.

In this context, the area of continuing education offers highly promising prospects as a sphere of trade union activity. The need for further education is growing, since technological change is accelerating the pace at which knowledge becomes obsolete. At the same time companies are spending less and less on training their staff apart from training to meet immediate, company-specific needs. This is a consequence of their fear that their "human capital" will leave before the training investment is amortised, a risk made greater by the changes in the working world. Unions could help to close this widening gap between the increasing need in society for continuing education and the generally decreasing amount of training offered by companies. If work is being redefined so that the term "job" is gradually becoming useless, then a policy is in any case better adapted to today's needs if it pays more attention to employability as opposed to demanding employment, in order to help assure people of a sustainable living.

In addition, unions can expand their role as dialog platforms in future, providing as forums not only for people in regular employment, but for everyone – people who are working and those who are seeking work. Contemporary models for such a process can be found today on electronic computer networks, where people from around the world often discuss the most diverse issues, form opinions, exchange experiences, give advice and jointly develop ideas. New company models and forms of work are creating opportunities to assert social demands in connection with the shape of work and incomes. These new channels are often far better than anything that existed in the past. The rise of the New Economy will hardly eliminate the need for political orientation and organisation. On the contrary, it is reasonable to assume that the structural change will be

followed by a dramatic increase in inequality in the world and a widening gap between rich or poor. In the future, too, many people will need support and organisation – but tomorrow they will require it in a different form than today.

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