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## PROLEGOMENA TO KNOWLEDGE INTENSIVE ORGANISATIONS

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**Abstract.** Researchers on management and organisation have always recognised that their particular subject is contingent on macro-level developments. The 1990s have witnessed abrupt changes like the collapse of the Soviet Union, the triumph of market economy and the lowering of international barriers. Our world view became to be built after World War II upon 1) the progress of science, 2) the industrial mode of production, 3) the political and economic *status quo* of the nations and 4) collective material values. The article argues that all these four have gone through tumultuous changes in ways that are conducive to reassessments in organisation studies.

### 1. "The times, they are a'changing"

Some two decades ago organisational researchers kept repeating that a company is an open system and, as such, it exercises exchange with its environment receiving raw material, finance, labour etc. as its inputs and giving its intended and unintended products as its outputs. Ten years ago contingency theory had its day, claiming that organisations are dependent on situational factors that reflect changes in the environment. Now we refer directly to markets (as opposed to hierarchies) and competitiveness, but the message has not changed in that organisations are seen to survive and succeed as far as they keep up with the changing environment. Vanguard companies can affect the environment within some limits, so that others have to react to their actions. Now in the mid 1990s, it sounds trivial to say that companies are dependent on the times and environment. Yet this contingency can be formulated in different ways depending on one's theoretical bent.

Given that companies are contingent with their environment, and that the early 1990s seem to be a time of most abrupt and discontinuous changes, it is appropriate to ask, how the companies, organisations, management and our thinking about all these reflect the ongoing changes. At the manifest level, the

collapse of the Soviet Union, the triumph of market economy, and the lowering of international trade barriers have visibly shaken the world economy, nations, companies, as well as the proverbial man in the street. Obviously we also need to challenge our established views about organisations.

The manifest changes did not appear out of the blue. There are at least four underlying trends that have corroded the thinking, order and structures that had become established during the years since World War II. Our world view became to be built upon 1) the progress of science, 2) the industrial (manufacturing) mode of production, 3) the political and economic *status quo* between nations and 4) collective material values. All four have to be reassessed. If organisations depend on their environment, they cannot help being affected by this tumult. Organisational inertia slows down their ability to react quickly; then although many organisations have gone through big shuffles, the greatest changes are still likely to come. The present paper deals with the above four environmental changes as regards their repercussions in organisations.

## 2. The shift in the philosophy of science

Newtonian physics did not only mean a big leap forward in physics, but it was also part and parcel of the transition from the Middle Ages to Modern Times. As the mechanical world view was able to predict and explain more and more of the physical world, it began to establish itself as the model of all science. It was thought that as the most advanced science – physics – preceded the world view that less advanced sciences and even arts would reach by means of cumulative research and knowledge.

In research on human subjects this mechanistic-materialistic idea began to take shape about a hundred and fifty years ago. Ranke (1824:iv–viii) as a historian and Comte (1830–1842) as a sociologist are mentioned as the first in the humanities and social sciences to have adopted this model that came to be called positivism after Comte. It is not easy to fix the time of its arrival in organisation studies. But certainly Frederick Taylor, whom most researchers regard as the father of the field, explicitly applied the idea of contemporary physical sciences to organisations and organising in his writings in 1903 (*Shop Management*), 1911 (*Scientific Management*) and 1912 (*Testimony*). Later empirical research, statistical methods and the influence of behavioural sciences established positivism as the mainstream of organisational research. There were influential exceptions, however, including Harvardian case-studies with their pragmatic and German *Betriebswirtschaftslehre* with its philosophical underpinnings.

When organisation studies turned scientific according to the positivistic model, the hegemony of mechanics in physics began to crumble. It was observed in nuclear physics that matter, or its particles, had wave properties: the wave model that was used to explain light and sound could be applied to particles as well. This led to quantum theory and its revolutionary consequences in the history of ideas.



Further, deterministic thinking gave way to stochastic thinking. Energy was shown to be a function of mass. From this, the force field view of matter was born: according to this the mechanical view had to be complemented by a process and interactionistic view, which is at the same time conflicting and complementary to the mechanical view. This was succeeded by relativistic thinking according to which objective properties of matter needed also properties of the subject for an adequate description of the physical world. Classical Newtonian mechanics became complemented – but not replaced – by an interactionistic process view (Capra 1981, Nurmi 1989).

In the social sciences positivism became to be seriously challenged towards the end of the 1960s. Kuhn's (1970) seminal book on the change of scientific paradigms in natural sciences was of paramount importance to social sciences. In organisation studies positivism was vehemently attacked and research that was loosely based on the theory of action, action research, ethnomethodology, hermeneutic verstehen and similar approaches began to abound. Where positivism tries to explain organisations on the basis of the invisible hand of the market and endemic laws of organisation (e.g. the iron law of oligarchy by Michels 1915), the action based view emphasises the visible hand of management and other actors and subjects of organisation, whose intentions shape organisations and their behaviour. These two views can be seen as being at the same time both conflicting and complementary. Like modern physics, the organisational reality is dualistic in the sense that properties of objects and subjects are needed for an adequate understanding. Positivistic explanations and hermeneutic understanding have their proper role in the field.

In organisational research good grounds for action research can be envisaged. Organisations are created by men for men and they reflect human intentions in all that they do. They do not obey the necessity of the laws of nature, but they are moved by decisions of human beings. Organisations are agents of goal-oriented action directed towards the future instead of only being products of the past. Organisational structures, systems and behaviour are influenced by interpretations of their subjects at least as much as objective conditions as such. Organisation is also a political process, which implies that power differences of the subjects explain more than statistical averages or other indices of the people in the organisation. Organisations cannot be described adequately, by observing them as objects from the outside only, but interpretations of its subjects must be understood as well.

The above considerations are of special relevance to knowledge intensive organisations. Their production process is more dependent on human than physical or monetary capital compared with industrial manufacturing of goods. Knowledge organisations are created by human beings for human beings. They work to fulfil intentions of these actors instead of being predetermined by forces independent of human beings. True enough, they depend on business cycles, but even then they are more flexible in finding new niches than industrial machineries

can ever be; converting the latter into new business lines has turned out to be extremely time, money, and patience consuming. The margin of the subjects is contingent on environmental factors even in knowledge organisations, but it is the subjects' interpretation of the situation that mediates this effect.

Clearly there has been an identifiable change in organisation studies from a positivistic paradigm towards emphasising the subjects and actors in organisations. In other words, researchers have been more interested in what happens within the organisations than in limitations set by outside factors. Economists have traditionally been more interested in the latter, but recently organisational economics has provided conceptual instruments (Williamson 1989) for the internal description of organisation that seem to be pertinent to knowledge organisations as well (Lehtimäki 1993).

Newtonian mechanics has affected our world view for centuries and even after its influence on physics had diminished. In the same way, the breach of positivism and the march of a new and still ambiguous view in social science are likely to resonate for a long time in ways that we are not able to foresee. It would not be a big surprise, if models from biological sciences would have more to say in the organisation studies in the future (e.g. Hannan & Freeman 1977). One more possibility is that humanities will strike back to balance the world view based on natural sciences.

### **3. From the industrial to the information era**

The best known author on the power shift from the industrial to the information era is, of course, Alvin Toffler (1990), though he is by no means alone in discussing the subject (see e.g. recent monographs by Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow 1994 and Stehr 1994). The fact is that we are living in the middle of this shift. It is a part of our everyday life, structurally, technologically, economically. It is as fundamental a transformation as was the shift from the agricultural to the industrial era.

This shift is taking place at a different pace in different parts of the world. Its consequences are none the less different. The OECD-countries are setting the pace, but even their reactions display a wide range of differences. The USA has proclaimed the information highway as central to the economic policy. France subsidised Minitel for the same purpose. Yet, in most countries business has spearheaded the development. Governments have been slow to react to the shift, and they have been lured to subsidise sunset-industries in the name of employment without envisaging the future. It is true that in terms of volume (share of the Gross Domestic Product, turnover of companies) industrial mass production exceeds the volume of knowledge intensive business. This, however, disguises how is the case with value-added, qualitative development, and the growth of special niche products – the latter development is seen even within giant corporations that have grown around mass production (Reich 1991). Particularly in countries with a high level of education, scarcity of financial resources, and



high transport costs of bulky products, high-value has more potential than high-volume. Their future lies in high value-added, quality, substance value and knowledge intensity. This also goes with a higher price per unit than mass produced industrial goods can ever have.

The alarming unemployment in Europe is a substantial part of this shift. It cannot be managed by old means, legacies from the industrial era. In the OECD-countries the number of industrial jobs began to decline in the mid 1970s (OECD 1986 and 1992, US Bureau of Labor Statistics 1981). Service industries and knowledge intensive industries are labour intensive. But they have not created as many new jobs as manufacturing has released. The depression of the early 1990s has been contributing to this. It is also true that it is not easy to retrain an industrial worker into a knowledge intensive job. Transitions are not easy for people who go through them. It may be too sombre a view that it will take a new generation to adapt to the changes. But there is no return to the golden age of smokestack industries either, and their supporters are a kind of latter-day Luddites. Subsidies for declining industries are, in fact, optional costs for investments in knowledge and knowledge based entrepreneurship. This kind of protectionism can slow down the change, but it cannot prevent it from happening. Indeed, as a consequence of protectionistic measures the shift will eventually hit harder, when the time comes.

In the present paper the economic and technological shift from the industrial to the information era is dealt with only as far as organisational imperatives are concerned. Neither the roots nor the consequences of the shift are discussed in detail. The nature of the shift is all but clear, but the shift as such is a fact. At least four kinds of organisational consequences can be listed:

In the first place, the shift affects each and every organisation by making it possible to automate production, administration, and other functions to a greater extent than was ever possible by means of mechanical automation. This is an ongoing development in all organisations.

In the second place, the information component is replacing solutions of mechanical technology even within physical products (Davis & Botkin 1994). A car and a mobile telephone are cases in point – in fact, they contain computers. Product development in knowledge-based industries implies a never-ending investment in knowledge, whereas manufacturing the products is simplified by means of automation. The information era does not, of course, mean that manufacturing industries or even agriculture will disappear, although they will employ less people. On the contrary, manufacturing provides a lever for knowledge intensive business and knowledge-based companies just as manufacturing developed by making tools and machines for agriculture.

In the third place, information technology is shaping organisational structures by allowing a wider span of control, flatness of organisations and looser structures. This, in turn, is conducive to a greater degree of decentralisation, which cuts middle layers and makes organisations flatter (cf. Gorbaxani & Whang

1991, Løwendahl and Revang 1995). Organisations are changing from structures to networks.

In the fourth place, and this is what interests us most, there is growing a particular species of knowledge intensive organisations. Their raw material is information, their production process is refining information to knowledge or wisdom, their energy is the creativity vested in their personnel, their service is knowledge of added value for their customers. There is a wide range of knowledge organisations, and typologies have been constructed on the basis of the degree of knowledge vs. capital intensity (Nurmi, Kontkanen, Lehtimäki and Viitanen 1991). Of course, there have been knowledge companies for ages: research, education, training, books, newspapers, magazines, entertainment, audio-visual communication and many other forms of information processing have been exercised before the term information era was coined. The point though is that until recently these fields have not had the development potential that is expected from them in order to lift us into a new phase of development.

All of this has major implications regarding the nature of organisations. Manufacturing industry and commerce are providing fewer and fewer jobs, whereas knowledge intensive industries have a practically limitless potential for employment. Jobs in this sector do not just spring up, they must be created by human entrepreneurship. Organisation means a division of labour. In this regard knowledge organisations give rise to problems and possibilities that are peculiar to them. As a consequence of automation the division of labour in industrial manufacturing of goods becomes simpler and mechanistic<sup>1</sup>, while the managing and leading of people in knowledge organisations cannot be based on mechanistic departmentation and hierarchy in the way that traditional organisation doctrines have taught us. The human side of organisation, creativity and interpersonal interaction are keys to the success of knowledge companies in a more genuine sense than in the lip-service "people-are-our-most-important-resource". Knowledge organisations are loosely-coupled (Weick 1976), they strive to be predictable, but they are by the same token unstable and buffered against uncertainty (Kontkanen 1994). Their strategy cannot be managed from top to bottom, but it emerges as an outcome of the encounter of strategic intentions and the resource base of the organisation (Viitanen 1994). How to manage people, whose job it is to acquire, process, and sell knowledge, in such a way that goals of the organisation and those of the personnel support each other to a satisfactory degree? In knowledge organisations people are the subjects, the energy and the resource that are difficult to replace due to the tacit knowledge vested in them. They are also the greatest business risks arising from individual and organisational crises (Suominen 1994:99–104 and Lähteenmäki 1995). The perennial philosophical question about the relationship between man and

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<sup>1</sup> The strategic management of declining industries in global competition is far from simple, however, but it does not concern us here.



organisation, between the individual and the collectivity, is a most practical managerial issue in knowledge intensive organisations.

Knowledge is an inexhaustible raw material and its potential for processing and its value-added is practically endless. The consumption of knowledge will meet limits, and already now there are signs of information pollution. Yet, for an inventive person only the sky is the limit in knowledge business. Product know-how combined with market know-why can create and modify demand almost infinitely.

Knowledge intensive business gives a new impetus for entrepreneurship. (Pinchot and Pinchot 1993). The economies of scale are not obvious in knowledge business, but it can be started with a narrow product-market mix and a small volume. Quality, customisation, fast movements, flexibility and uniqueness are competitive edges, and this is where small can be beautiful. Barriers of entry into knowledge business are lower than in manufacturing. Information favours new kind of entrepreneurship, part-time employment and freelance work. Even big companies need to decentralise their knowledge processing departments into small units, and, yet, it is difficult for them to seize the core competence of the unit for the strategic advantage of the company due to interdepartmental barriers. Learning network is the proper way of organising knowledge business within companies, between companies, even the economy as a whole (Lessem 1993).

High technology calls for its counterbalance a high touch in human interaction. The latter is easier now than it was in an era, when most people had to spend most of their time and energy to satisfy their material needs. As manufacturing of goods is now done by machines, people are released from physical work and have more time for self-development and human interaction. The depression in the early 1990s, the defensiveness that it rouses, old habits of thinking, and regulations belonging to the past – all of these may prevent us from seeing that additional consumption of material goods – although it increases economic growth – does not bring along a better quality of life for most people in the developed economies of the West. The point is that to maintain and enhance its standard of living, a nation has to add to the value of the world economy.

Technological development has cut jobs, but it has created new ones, too. Still the leap from one technology to another is a painful change for many people. For instance, distance work has not advanced to the extent that technology would allow. One reason is that it does not satisfy interaction needs of many people. But the need and possibility for human interaction creates demand for new services as well. Entertainment, adult education, quality circles and many other "interaction businesses" have increased of late. Self-development seminars of different kinds have grown fast even during the recent slump; they are even replacing formal education. Besides, interaction is inside knowledge organisations a (or perhaps the) most important energy sparkle and instigation for individual and organisational learning. Core competence is borne out and grows where the resources of the company and the needs of the customers interact.

#### 4. International integration and division of labour

A megatrend that everybody sees with his own eyes is the internationalisation. Even those who operate in the home-market only hear this trend knocking at their door. But increasingly companies are actively seeking markets outside the national borders, as the domestic markets for their products become saturated. International and transnational corporations have grown into major players in world-wide business. This is a global development, but for the time being, it is accelerating especially rapidly in Europe. The European Union has an economic emphasis, and it was created for the express purpose of establishing a common market within its boundaries. In addition to the economic aspect, "Euro" has become a prefix and slogan for endeavours in many other fields to harmonise national policies. Despite all attempts at integration, it is and remains an insistent feature of "Euroculture" that Europe remains a tapestry of national and regional cultures that never mingle in a complete harmony. Within the European Union there is a never-ending conflict and dialogue between forces directed towards integration and forces that give prominence to national and regional identities. Both of these forces need to be recognised in order to understand the shaping of the Union. Nevertheless, the common market is working towards increased division of labour, and making national protectionism more and more difficult. It follows therefore that companies can only thrive on the basis of their competitive advantage.

Also the political order that was established in Europe during the post-war years has crumbled. West European integration and East European disintegration are simultaneous processes that are felt most intensely in the countries that were on the border between the two. The collapse of the Soviet Union was a kind of a "black hole" that was felt in the countries whose economy and politics were dependent on the Kremlin. They lost their Eastern markets, but, in their new orientation, they are handicapped by having lost competitiveness in the West during the years that they traded with the Soviet Union. On the other hand Russia and the other former communist countries have a huge demand for know-how. In knowledge intensive business, political risks are much smaller than in business where foreign direct investment is needed. Financing may require international arrangements. Germany has gained experience in this within the country (Glotz and Lodensack 1995), which facilitates operations across its border in the East.

Take Finland as an example of the above developments. The country is situated as a northern outpost of Europe and between Sweden and Russia, which is in transition from communism. Finland's best known renewable resources are forests and the high level of education, while the scarcity of finance and the long distance (meaning high transport costs of bulky products) to Central Europe are handicaps to internationalisation. The forest industry is by far the leading sector in export earnings and in many other ways (Lilja, Räsänen and Tainio 1991), although the metal, electronic and chemical industries are not unimportant. The export products of the forest industry are mainly those of chemical-wood



processing (pulp, paper, cardboard etc.); i.e. they are capital intensive, they do not create employment, their transport costs are high, their value-added is low compared with the potential in mechanical and particularly biotechnological wood-processing. The Finnish currency has been devalued many times, last time in 1991, and as a consequence, during the last few years the exports have grown favourably, company profits are high, but at the same time the unemployment has risen close to 20% of the labour force. Obviously, the situation is not satisfactory. The devaluation of currency is supposedly not possible in the new Europe. New thinking in forest industry is needed to increase the value-added extracted from Finnish forests.

In the years to come the chemical wood-processing industry had better invest in manufacturing paper in Europe close to its market, and in the raw material of the future, i.e. recycled paper. Know-how in chemical wood-processing has been developed in Finland and it can be exported with a value-added greater than that of paper. Mechanical wood-processing has an under-utilised potential for high value-added products, but capitalising on this requires a much better international market know-why than Finnish companies of the field have had in the past. Biotechnology has, however, the highest potential. Xylitol-products have set an example. There are practically limitless biotechnological possibilities for processing wood into high value products, but efforts in research and development and in international marketing – perhaps in the form of strategic alliances – are needed to boost the industry.

The point is that competitive knowledge-based and knowledge intensive business can be built on national resources and the accumulated experience gained in processing them. It must be combined with know-why of the needs of the customers. In exporting know-how and knowledge intensive products, a much better understanding of the customers' culture is needed than in exporting manufactured goods. In the latter the customer is often seen as an object of marketing operations, whereas in knowledge intensive projects the customer is an active subject in producing the final application. In the knowledge intensive business, the mutual learning and synergy between the selling and the buying partner is concomitant to success. The buyer learns product know-how, but it is as important for the exporter to learn know-why of internationalisation, which can be transferred further to other projects, customers and products. This kind of learning is a decisive competitive edge in sustaining internationalisation. Where the know-how and know-why meet, there you can create core competencies that are difficult to copy, as the core competencies are in the last analysis vested in people and they cannot be cloned. If this now sounds idealistic, it may be a tough reality sooner than we realise, if the European integration and division of labour advances in the visioned way.

Indeed, there are no longer any "national" products, companies or even economies. Probably, the only resource that can be cherished nationally is the infrastructure for learning, education and knowledge (see Reich 1991 for the

development of this argument). A national knowledge base can attract investors in developed economies in a healthier way than investments in cost competitive businesses. It does not make sense that OECD-countries would compete against the lesser developed economies with cheap labour and other factors of cheap production (Krugman 1994). Rather they had better develop niches of their own in the global market place. A national knowledge base that can be applied in the international arena takes decades to develop, it cannot be copied and it cannot be transferred as easily as financial and physical resources. Knowledge as a resource must be exercised for its maintenance and development, and it does not wear out in use, the way that physical resources do.

Europe cannot be a fortress, but it is and it will remain, a partner in the international division of labour. As a matter of fact, European integration is a reaction to the challenge from the USA and Japan. A global division of labour is taking place. While the hegemony of the manufacturing industries has moved to areas that were a few decades ago called underdeveloped, knowledge based industries provide the potential for OECD-countries. The USA is on the way to this: while many of its traditional industries have suffered from serious setbacks, knowledge based industries have mushroomed and attract considerable investment.

The shift to the information society and globalisation are parallel processes and they accelerate each other. Technologically, we can live in "real time" globally, but there are many political, institutional and individual barriers for this to come true. As the competitive advantage of manufacturing is moving to Asia and Latin America, and as the future of agricultural products could be in Africa, it would seem that there is an unprecedented potential for a global division of labour between countries and companies and within international companies. It is not, of course, as simple as that. Division of labour makes regions more vulnerable to distant catastrophes – though, by the same token, this very condition might compel them to global co-operation instead of warfare. Protectionistic measures are not so hard to understand seen from the viewpoint of national and regional advantages or the everyday life of millions of people (Ramirez 1995) who are going through these deeply influencing and painful transitions. The gulf between the affluent North and the much poorer South is well-known and acknowledged. While the iron curtain between the East and the West has been raised, the economic gulf is wide open and dividing Europe. Neither zero-sum nationalism nor neomercantilism can solve these problems. Amidst all this muddle, the trend towards globalisation is irreversible, although we do not know what kinds of processes, developments, and tumults it will bring along.

### 5. The value shift

Do people change? Biologically, human beings have not changed since the last mutations or during the time of the written history of man. Yet, the people in an agricultural society behaved differently from people in an industrial society.



Today we can observe differences in the social behaviour and values in different cultures, particularly outside the Western culture. It is plausible that the shift from the industrial to the information era cannot help touching our values.

A part of these value changes are imperatives of the structural social change. People adopt them in order to survive the changing nature of work, just as they learnt to work in factories in the industrial era. But another set of changes releases men and provides them with new opportunities in the new information and interaction highways.

I wrote about this subject some ten years ago (1984) and then I felt ill at ease, as values were much more difficult to treat than the scientific, economic and technological transformation – now I feel even more confused. With hindsight, my view at that time reflected an optimism in the information era. It is apparent that values have not changed to the supposed direction. Casual observation suggests that values have settled down at the material level reflecting the industrial era rather than moved towards a post-industrial pattern. The breakthrough and power of the market economy seems, on the surface at least, rather to have highlighted material values in the OECD-countries and even more so in the former socialist countries – though it might have been thought that market economy would release material resources for a more spiritual use. Many individuals have resorted to material values due to the increased unemployment and economic insecurity – although it had been visioned that the value of work would decrease as people could get, if necessary, their subsistence by means other than working for a salary. But values under a threat tend to be crystallised.

Values have been measured by means of value inventories (e.g. Schwartz 1992 and Puohiniemi 1993, 1995), but to the author's knowledge, studies comparing values in western cultures comprehensively enough, have not been conducted. The investigations that have been conducted suggest that values have changed relatively little of late (Puohiniemi 1995). The hypothesis has been put forward that values take form early in socialisation and that they do not change easily. A value shift would take place only after the age cohort that has grown into the world of the 1990s has entered in the societal arena. According to this, value differences between generations will be greater than those between nations. Value change would then be the slowest component of transformation, and values slow down structural changes. During an economic depression many people turn defensive and stick to the values they have grown into and close their eyes to the insecure and even fearful future. Nonetheless, values cannot remain unchanged for good amidst the changes in the nature of work and the international division of labour. Perhaps values do not change continuously, but in discrete quantum leaps. What lies ahead, when and how values will change is most difficult to foresee.

It is likely that the collective, particularly national basis of values, is breaking. This would be a parallel development to the diminishing economical weight of nation states (see Ohmae 1995 for a cogent account). And it would also be in line with post-modernism, which sees deconstruction and difference as liberating

forces and foresees indeterminacy, fragmentation, distrust of totalising discourses, discontinuity, instability, self-referential structures, even chaos as characteristics of the era we are entering (see Cooper and Burrell 1988 and Berg 1989 for reviews from the perspective of organisational research). On the other hand, these are basically Western phenomena and their difference from Islamic, African and Asian values is very, very wide.

Even if the national basis of values is breaking, other collective sources may take their place. Mass media are unifying the world. People are listening to more distant drummers. But the media are also grouping people in new ways. In times of rapid changes, the generation gap between people is growing. Young people adopt values via new interactive electronic media; older people may find trouble even in learning to use them. Another dividing factor is emerging between professional groups. Even though the proletariat of the world never united the way that Marx prophesied, today's knowledge workers and brokers of symbols live, move, and interact globally sharing values with their colleagues all around the world, but growing apart from the local farmers, service personnel, and blue-collar workers of their own nation. Knowledge, knowledge business and knowledge workers also operate as carriers of values. And finally minority groups and individual experiences as sources of values may make the future value map more like a mosaic than a drawing with contours and a profile.

Carl Rogers described the person of tomorrow a decade and a half ago (1980:351–352). Let me end with a quotation from him:

“Process persons. They are keenly aware that the one certainty in life is change – that they are always in a process, always changing. They welcome this risk-taking way of being and are vitally alive in the way they face change.

Anti-institutional. These individuals have an antipathy for any highly structured, inflexible, bureaucratic institution. They believe that institutions should exist for people, not the reverse.

The authority within. These persons have a trust in their own experience and a profound distrust of external authority. They make their own moral judgements, even openly disobeying laws that they consider unjust.

The unimportance of material things. These individuals are fundamentally indifferent to material comforts and rewards. Money and material status symbols are not their goal. They can live with affluence, but it is in no way necessary to them. - - -

The winds of scientific, social and cultural change are blowing strongly. They will envelope us in this new world, this world of tomorrow, which I have tried to sketch. Central to this new world will be persons, the persons of tomorrow whom I have described”.

Said Carl Rogers in 1980. Is this idealism? Perhaps. But in times ahead we need idealism devoid of illusions and realism devoid of cynicism as John F. Kennedy in one of his famous speeches declared.



## 6. Conclusion

A treatise on shift and transition is necessarily of a conditional, indefinite, and uncertain nature. Predictions of the future have erred time and again. In order to learn about social and economic development it is more instructive to learn about the mechanisms and dynamisms of change than to attempt to describe presumed states in the change process. In this paper the breakthrough of a new philosophy of science, the economic and technological transformation, globalisation and value shift are regarded as fundamental forces that are shaping the industrial societies into an information intensive era. This raises the question: How do knowledge intensive organisations differ from industrial organisations? It is the latter whose traces dominate our organisational thinking. These prolegomena do not address themselves to this question, but reference is made to other publications of the Research Unit on Knowledge Organisations of the Turku School of Economics and Business Administration (Kirjavainen 1996, Kontkanen 1994, 1996, Lehtimäki 1993, 1996, Lehtimäki, Kontkanen and Nurmi 1991, Nurmi 1986, Nurmi, Kontkanen, Lehtimäki and Viitanen 1992, Viitanen 1992). This article delineates macro-factors that evoked the issue.

We are living through an era of economic and technological transition – there is no doubt about this. The philosophy of science has gone under such a paradigmatic shift that it is very hard to imagine a return to an earlier phase. Globalisation is proceeding step by step, sometimes taking back a step taken, but the direction of the change is irreversible. There are signs of a value shift, but it is difficult to distinguish the fads of the day from fundamental transitions – collective values seem to be the slowest change factor.

In this article it is assumed that the economic transition – including both a technological and a societal component – is primary so that it will, in due course, influence values of people. This view has been advanced by thinkers as different as Karl Marx and Alvin Toffler among many others. The link is not, however, a deterministic one. It is a dialectical process with manifold and intricate loops of feedback and interaction. People can influence the process, its content and speed, but they cannot prevent it from happening nor turn its direction very many degrees. The intentions of the subjects, the "free will" so to speak, act within the limits of economic and technological possibilities.

The economic and technological possibilities build up a kind of "reality bubble" around the values and intentions of people. The intentions can be materialised inside the bubble, outside the bubble there is the world of utopias. The size of the bubble varies at different times, and it is at its largest at times of great transformations and crises – they are like visitation periods for mankind, during which the choices that are made shape or even turn history. Looking back in history, it is not too difficult to identify this kind of periods, but it is most difficult for contemporary people – myopic in their present predicament – to distinguish manageable options from utopias.

Organisational researchers have talked about managerial margin: there are times and issues of a wide managerial margin, when management can influence the organisation greatly, while, when the margin is narrow, managers need to adapt to what is inevitable. By way of an analogy – admittedly a pompous one – we could speak about the margins of mankind. Nothing can turn back the trend towards globalisation, but within this process we can work for the welfare or illfare of people. Similarly, the information era provides opportunities for releasing people from bonds of poverty, ignorance and tyrannies or for confining people to new impenetrable castes. Knowledge intensive organisations are micro laboratories about co-operation, division of work, and management in the knowledge intensive world of the future.

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