*Journal of Universal Computer Science, vol. 8, no. 5 (2002), 456-481*
*submitted: 4/2/02, accepted: 3/5/02, appeared: 28/5/02* 

# The New Mobility of Our Society Caused by Telecommunications

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**Abstract:** People have always been mobile. In the Middle Ages, masses moved because of pilgrimages. Today, these masses are called holiday travellers.

People have never been more mobile than today. Because of increasing prosperity and the abolishment of many borders in Europe, "freedom" has become a new symbol. Freedom causes movement. We have yet to overcome the borders of the countries behind the former Iron Curtain.

Our economy needed the division of labour, and therefore more mobility for goods and managers.

Moreover, liberalised markets brought about the "global village". In the 21st century, the global economy will be dominated by three key industries:

- Telecommunications
- Information Technology and
- Tourism.

Changes in technologies and generations are common developments. Old styles are replaced by new ones. New technologies are replacing old ones. Telecommunications and Information Technology have propelled us into what we call the Information Society. More than 50 percent of employees in developed countries are working with information.

The Information Society did not only bring about change. Its instruments also helped us to become more mobile. Mobility is nothing new for people. We can now lead nomadic lives without being accountable to the state.

**Key Words:** mobility, telecommunication, internet, information society, information technology
**Categories:** J, K

## 1 Cyclical changes

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- Tourism.

Information Technology is growing 2.5 times faster than more traditional sectors of the economy.

The mobile economy also influences our private lives – tourism is one of the most important industries in the world. 11 percent of the workforce is employed by tourism.

Cycles have nothing in common with "fashion". "The system of fashion in its professional and current form is more than a cool machinery for permanent innovation; it is an intelligent and effective means against "too much civilisation" [Guggenberger 1998]. Fashion creates a kind of "buffer zone" or "time cocoon" for mankind to protect itself against the flood of information. Fashion is influenced by society and consists of permanent comings and goings: destruction results in creation. Cyclical changes now have a more long-term effect.

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The Information Society did not only bring about change. Its instruments also helped people to become more mobile. Mobility is nothing new for people. We can now lead nomadic lives without being accountable to the state.

Information technology is changing many processes in our working environment. These changes are not only technical in nature, but also due to social and economic factors. Because of new media, traditional jobs are changing or are no longer necessary.

The decrease in employment in agriculture and industry clearly shows that we are rapidly moving towards the Information Society. The following figures speak for themselves: in Germany, employment in the agricultural sector decreased by 76% and in industry by 33 % between 1960 and 1990. At the same time, top technologies increased by 44% and the high-tech sector by 26%.

| | |
|---|---|
| top technologies | +44% |
| high-tech | +26% |
| industrial production | -33% |
| agriculture | -76% |

After World War II, more than 50 % of Austrians were employed in agriculture. At the beginning of the 21$^{st}$ century, agricultural employment in Austria will have decreased to 5%.

During the 19th century, high-tech steel industries ruined small farmers. Nowadays, it is the steel industries that are the victims. Although, the number of industrial employees has decreased dramatically, the downward trend is continuing. By 2020, every fifth job in industry will have become obsolete.

Service industries have emerged as the winners in this situation. Above all, software and content production will see enormous increases. A simple camera can now boast of more software than an Apple computer 10 years ago. This has an effect on prices. The software of a Minolta camera costs 550 Euro, the lens 40 Euro, and the case 20 Euro. Some decades ago, it was the other way round, since the software did not exist. Information nowadays accounts for a high proportion of the total economy.

Hardware plays a smaller part. It is software that dominates the product.

Changing the dashboard computer of a car can increase the power of the engine. The computer manages fuel injection more precisely and effectively: it thus reduces the car's need for fuel and increases its power. Engines are becoming better because of exact control. The "control part" costs more than the engine itself.

"These new technologies are changing our society, our economy and our work fundamentally." [Rudas, 1999]

Although many jobs were lost, mainly in the agricultural sector, the overall job situation has improved.

In 1900, the U.S. had 27 million workers; in 1993, 125 million. This rapid growth is partly due to the large proportion of females in the workforce.

The high demand for information specialists in Europe cannot be matched by an adequate supply. The development of Austrian employment shows the following:

| year | employed women | employed men |
|---|---|---|
| 1952 | 2.1 | 2.5 |
| 1966 | 2.2 | 2.4 |
| 1980 | 2.5 | 2.5 |
| 1994 | 2.7 | 2.7 |
| 2001 | 2.8 | 2.7 |
| 2008 | 2.8 | 2.7 |
| 2022 | 2.6 | 2.6 |
| 2036 | 2.4 | 2.3 |
| 2050 | 2.3 | 2.1 |

number of employed persons (age 15-64)
Source: WIFO
Fig. in mill.

Besides the long-term cycles, changes also happen in the middle-term.

Ups and downs in the economy are usual. The intensity of growth is sometimes slower and will be pushed by new events. After stagnation and depression, an upward trend follows. These cycles have often been discussed. Only after the research work of Cesare Marchetti, have we learned that these cycles follow a certain pattern. Old technologies are replaced by new ones. This substitution is a result of social behaviour and new economic structures. They all follow certain patterns.

Marchetti started the research work with the number of fish in the Adriatic sea. He found out that it is possible to calculate the future number of fish. Many predatory fish reduce the number of other fish and, consequently, the predatory fish also decrease in number. The predatory fish can then grow, and so the cycle starts again. This result is the “S-curve” and is also used in the economy.

The cycle comprises the following steps:
- emergence (=low distribution, low growth)
- growth (=high growth, quick distribution)
- saturation
- replacement

In the meantime, a lot of material for the proof of this formula has been found:
- the development of the car industry in a particular country
- the increase in the world's air traffic and its transport volumes
- the world tanker fleet
- the demand of particular countries for primary energy
- the technological substitution of steel producing methods
- the replacement of horses by cars, etc.

Although we have the feeling that many things are developing in a quicker way, the innovation cycle remains constant. The innovation phase is repeated every 55 years.

The current wave can be described as follows:
- 1980: middle date between innovation and invention
- 1984: start of innovation period
- 1993: 50% of basis innovation realised and 50% of new industries founded, but low production capacity.
- 2000: 90% of all innovation done. Upward trend starts.

The new developments of this cycle are:
- information processing
- genetic research
- hydrogen engines (car and aeroplanes)

The centres of these key technologies are situated near reputed universities. In the U.S., these are :
- UC Berkeley
- Stanford University
- Massachusetts Institute of Technology
- California Institute of Technology;

in Europe:
- Munich
- Dresden
- Zurich,

and in Japan:

- Kanagawa

Educational institutions produce the specialist workers for the industry of a region.

On the threshold of the 21st century, we will have too few information specialists and too many unskilled workers. “On the one hand, we have the example of Volvo with many dismissals during the restructuring process, which is still continuing. On the other hand, we have the field of telecommunications, where there is still a lack of skilled workers. On the one hand, workers are dismissed because of inappropriate skills, on the other hand, specialists are needed. The problem is the gap between the employees dismissed and those needed.” [Lassnig, 1999].

Workers cannot be retrained to become information specialists. A well-known telecommunications company employed 2000 people 15 years ago. Nowadays, it still employs 2000 people. But 15 years ago, the company had a factory with 1500 workers. The factory developed into a “workshop” with 150 workers. At the same time, a software building was built for 1000 engineers. Practically 1000 workers were dismissed, and 1000 software engineers were hired.

The great flexibility of the economy is partly due to the abolishment of monopolies. Industries in former centuries were often organised monopolistically. The production of pencils was a monopoly of Hardtmuth during the Austro-Hungarian monarchy. ”In 1812, Hardtmuth was granted a “Privilegium exclusivum” for graphite mining by the emperor.”

Later, companies in certain economic sectors became monopolies because of strategic reasons, and telecommunications because of military reasons. At the end of the 20th century, this sector was liberalised. With this step, which was carried out in North America some decades earlier, basic changes in the economy were the result, thus changing the social behaviour of our society and our industry again.

Various names are used for our present society:

- service society
- information society
- knowledge society
- post-industrial
- post-modern
- post-material
- risk society
- prosperity society
- adventure society

The diversity of the names shows the mobility of modern people. They are living in several societies and change with them if necessary. At the same time, the social society and the prosperity society are competing with each other. “Real “solidarity” fights against brutality, self interest, superficiality and self-determination.” [Prisching, 2000].

The cycles discussed are only middle and long-term ones. A change beyond them would be called a change of the biosphere towards the neo-sphere. The development of earth-based individuals into knowledge-based individuals.

The development of a knowledge society means more spiritual and moral aspects in our behaviour. A change that cannot be valued at the present time. Our lives are too short to calculate the future effects.

## 2 Changes in communication

At the beginning of the 21st century, we are confronted with enormous cultural changes. It can be compared with ancient Greece in 500 BC: the change from “oral culture” to “writing culture” (Socrates, 469-399 BC). Nowadays, the “multi-media culture” is emerging. Communication has more levels.

The changes in absorbing knowledge can be valued. In industrialised countries – countries with certain learning methods – these values are rising in the case of intelligence tests.” [Rötzer, 2000].

Life styles are also changing because of increased mobility, thus leading to individualisation trends with the demand for:

- here ( wherever it is)
- now (nobody wants to wait)
- for me (not forced to share something with somebody)

### 2.1 Technical limits

New media should be seen only in addition to the traditional economic instruments. Working with computers can replace old methods of knowledge transfer. But not everything can be replaced.

Telecommunications are eliminating hierarchies and address people directly. The single worker stands in the hierarchy of the net on the same level as his superior. The same is happening in schools. The teacher is equal to the student in the internet field.

The limits of telematics are the transport of information. 7% of communication is used for content, 33% for the voice. 60% is needed for non-verbal signals such as feelings, body language, which can only be transported with difficulty by the new media.

However, the dream that a network knows no frontiers is not correct. In 1960, the radio was introduced into parts of Africa. After 30 years, the dissemination had reached only 20%. Why? The price of a radio is half the annual salary of a worker. When will these countries be able to use internet?

The developing countries are separated from the digital development. The distribution of the internet users is as following:

| | |
|---|---|
| 43.2% | North America |
| 28.2% | Europe/CIS |
| 20.6% | Asia/Pacific |
| 5.6% | Latin America |
| 2.4% | Africa/Middle East |

Source: Die Woche, 28 April, 2000

In contrast to this, here is an example for population:

If the population of the world were concentrated in one village, the following would be the result:

- 60 North Americans
- 80 Latin Americans
- 86 Africans
- 210 Europeans
- 564 Asians
- 300 would be white 700 would be coloured
- 60 percent would have 50 percent of the total income
- 700 would be illiterates
- 500 would not have enough to eat
- 600 would live in slums

These different societies influence the penetration of telecommunications technologies. In Germany, the price of a computer is one month's salary. In Bangladesh, it is the equivalent of 10 years' salary!

The presence and the possibility of usage of the new media is a precondition. But what we are doing with these new media will be more important. More media have the negative aspect of spiritual laziness. Several services, from house deliveries to intelligent search programmes, will change our behaviour – at least that of people who can afford these services. It is wrong to assume that the possibility of getting more information will go hand in hand with more intelligence. A good general education is a prerequisite. It is not enough to only have the internet. To be creative with modern communication tools will be essential. These new technologies represent also a basis for co-operative learning. The "student" is able to learn by himself and from others.

The result of empirical research shows that the expansion of television will not raise the consumption of TV. Despite having 50 or more channels, a person uses only 13 of them. He needs a good navigation system to make the right choice.

The fragility of our society lies not in globalisation and internationalisation but in the concentration of knowledge. Science is not the key to the secrets of life. Today we can recognise a shift of knowledge. Reality is established on the basis of science. In former years, knowledge was a system to describe reality.

Knowledge and technician can be found in all fields of life. Emancipation is also bringing uncertainty. Science presents predictions not solutions.

Special knowledge is no guarantee for the loss of power. Traditional organisations like the church and the state are moving into the background in favour of smaller groups. New media can help smaller organisations to act.

### 2.2 Shift of skills

Years ago, managers dictated and secretaries typed the letters. Nowadays, with the assistance of computers, many managers type their letters themselves. Secretaries are no longer "typists", they can assume further duties. The manager is his own typist.

These changes happen unspectacularly and unannounced. If a manager announced the dismissal of all secretaries, protests would follow. It happens like the abolishment of servants. Washing machines, vacuum cleaners and modern kitchens make the housework easier.

Traditional teaching means that the teacher prepares facts and figures. By means of the new media, research work for learning can be passed on to the students. The students report on what the have read, and the teacher interprets it and coaches the class.

In addition, a further change in our society should be mentioned. At the end of the $20^{th}$ century, we were faced with great cultural changes. At the beginning of the $21^{st}$ century, we are faced with enormous cultural changes. It can be compared with ancient Greece in 500 BC. The change from “oral culture” to “writing culture”. Socrates (469-399 BC) wrote down nothing. For Aristotle (384-322 BC), writing was usual. “Socrates liked to talk and not to write, his ideas were written down by his student called Plato.” [Frühwald, 1997].

Today, the revolution means the change from “writing culture” to “multi-media culture”. Communication has more opportunities.

In parallel, our correspondence is developing from “writing” to “talking”. However, communication is quicker. In former times, letters were the basis of communication. Today, facsimiles and emails determine business life.

Technologies such as voice-mail, mobile boxes and video-conferencing are new communication methods. And they are quicker.

Business will be done in a quicker way. New technologies like voice-mail, voice-recognition and video-conferencing will enable the transfer of information on an oral basis. The qualification of the manager will be measured by his style of presentation. "The people who can write brilliantly are in the driver’s seat right now. In the networked world, they will be less dominant and less relevant.“ Written messages can be read as often as the addressee wants to read them. In the case of oral communication, the message must be clear and simple. The addressee has no time to think about it.

New media, computer and communication technologies are changing our society, our relationship to these tools and our methods of education.

### 2.3 Virtuality

Through the man-computer-network, new virtualities and spiritual worlds are emerging. Virtual realities have already existed. What is the difference between a dream and a virtual reality?

Manfred Faßler explains “virtuality” in the following way:

a physiological (sensitive-nervous)
a biographical (related to awareness)
an infographical principle (recognised codes) of forming. [Fassler, 1999].

Virtual reality can be reduced to programme codes. For a dream, only the spiritual interpretation is relevant.

Does reality flows into virtuality? An idea of many post-modern philosophies, which will not happen.

The Gulf War was not virtual, it was real. But it was manipulated by the American Army together with CNN. Only selected pictures were shown to the public.

The event as it happened and the event transported were different.

Virtual reality offers more mobility to mankind. Situations can be downloaded from a network. This can be done wherever and whenever a person wants it.

## 3 Socio-political mobility

Technical tools allow us to be reached nearly everywhere. This means a greater independence from location. The time factor becomes more important than the location, thus affecting our social togetherness. “Electronic media are eliminating our social structures. They are creating a new social universe with no possibility of withdrawing from the world. The traditional connection between physical destinations and social environments is missing. We are no longer living in a region, we are living in a communications system; we are not longer living in houses; we are living in programme segments. The digital nomads are sitting in self-designed locations in front of screens and are surfing through universes and times.” [Guggenberger, 1998].

### 3.1 Social mobility

For many decades, people were determined to live in their respective social classes. It was very hard to move to the upper class.

Agriculture, as above mentioned, represented employment for more than 50 percent of the population in the 20th century. This situation has changed radically in the last 50 years. What happened to people working in the agricultural sector? The process started according to certain structures.

At the end of 1970, there were no important changes. The social way up was very difficult: [Brückmüller, 2001].

- One fifth of the workers were farmers
- More than the half of the workers came from working-class families
- 40% of employees and civil servants came from families of employees and civil servants

The reduction of the industrial production caused a situation for the workers similar to the development of the farmers 150 years before. Many farmers changed to industrial production. At the beginning of the 21st century, they were forced to rethink the situation. The rules of economy don’t accept a normal change like industrialisation. The requirements of information employees are different and need more education. A farmer was able to learn the job of an industrial worker in a short time. But it is not possible to train a worker quickly to become a software specialist.

The past showed us a constant upward trend in the social field. In the future, we will have to consider that a social downward trend will be unavoidable.

### 3. 2 Increase in the percentage of old people

The percentage of old people in developed countries is rising. In Germany, more than 50 % of the population will be older than 50 in 2030.

The basic question is how a society with a majority of old people can be further innovative?

Up until today, the young generation was in the majority and put pressure on cultural evolution and changes. Is it possible to retain the level of innovation in a society with a minority of young people?

The Prime Minister of Sachsen, Prof. Dr. Biedenkopf, urged universities to develop education programmes that would enable employees who have already been working longer than 20 years to be retrained. Is it a realistic possibility to retrain older people to fill the gap of younger people?

In any case, people are remaining mobile by learning.

The European countries are not able to breed to the same extent as in the past. As an example, Austria is mentioned below. In 1999, the lowest level of fertility rate was reached.

1.31 children per woman:

| year | birth | children per woman |
|---|---|---|
| 1961 | 131.5 | 2.78 |
| 1963 | 124.8 | 2.82 |
| 1971 | 108.5 | 2.29 |
| 1981 | 93.9 | 1.67 |
| 1991 | 94.6 | 1.5 |
| 1997 | 84.1 | 1.36 |
| 1999 | 78.1 | 1.31 |

Source: Statistical Office Austria

Volume: thousand

### 3.3 Internet and age

The attitude to the new media is different.

New research has found:

**"Digital Homeless**"(so-called by Mr. Negroponte) are people who don't accept new media and are not able to handle them. The age of digital homeless is between 30 and 55.

A questionnaire among Austrian teachers showed us a similar result. Strictly speaking, the teachers were asked whether they were able to handle programmes such as Word and Excel. The kind of programme was irrelevant. Only 10% of all teachers between 30 and 55 are able to work with such computer programmes.

Because of these results, we advised the respective ministers to initiate further early retirements.

As the Indians already knew, the "old people" are the wise ones. This idea no longer exists in our society. In connection with the new media, we mentioned the importance of the old and experienced labour force. People older than 55 are also interested in new media and, moreover, they have life experience.

In America, the highest growth rate in the field of internet access can be found among people older than 70.

**"Paperless"**

The age of a person can be determined according to his use of paper printouts.

Internet users below the age of 30 read the information directly from the screen. Older people need a printout to work with. Older users print out their emails before reading them.

**How age influences the handling of telecommunications**

- Successful people often use telecommunication tools.
- Single people using them more regularly compared with groups (couples, families, communes).
- In households where the head is older than 55, younger people are also restricted in using them.
- Differences between men and women: men use them to exchange "facts"; women also chat and use them for emotional discussions.
- People talk to beautiful people in a kinder way . A partner not regarded as "ideal" was not treated very nicely in some tests.
- Older people are spending less time communicating than younger ones.

**Internet is enlarging communication**

- using telephones: 70% of all conversations are within a distance of 8 kilometres
- 40-50% between 3 kilometres
- 60% of all phone-calls in Germany are local
- in cities it is common to make more phone calls than in rural areas
- this means: the intensity of telephone-calls is increasing in the case of long distance calls and a decrease depends on the density of population
- in the field of internet the radius is growing
- generally speaking, one manager of our society has more contact with people in one day than a man living in the Middle Ages during his whole life

The active life of older people enables them to engage more with new technologies.

"In the case of people older than 60, only 0.9% need care, older than 90 years the percentage is 19%. Therefore, retired people are living at home and are a very attractive target group." (Austrian Internet Monitor) At the beginning of 2001, 25% of 51-60 year-old people had internet access. The market interest is increasing for this group:

www.seniorworld.at
www.seniortreff.at
www.60plus.com
www.eurosenior.org
www.netclub.at/senioren
www.senio.de

### 3.4 Women and the mobile society

The proportion of women is increasing in the Western countries. More than 50% of the population in Europe is female. Therefore, more female labour is available. More mobility is competing with the situation of a family where both partners are working. It is a problem if both partners want to have their own career. (“two-career-families”).

The increased female labour force is due to social changes. Women are marrying later. They are living alone for a certain period of their lives. Their level of education is better than in the past. Modern households are minimising housework and the number of children is decreasing. The position of women within families is changing. In the United States, 20% of all women are earning more than their male partners.

| country | female labour force (in %) | |
|---|---|---|
| | 1970 | 1990 |
| USA | 48.9 | 69.1 |
| Japan | 55.4 | 61.8 |
| Germany | 48.1 | 61.3 |
| Great Britain | 50.8 | 65.3 |
| France | 47.5 | 59.0 |
| Italy | 33.5 | 43.3 |
| Spain | 29.2 | 42.8 |

Source: [Beck, Ulrich, 1999].

But not only the quantitative factor of women is important, the qualitative aspect and the changes have to be pointed out. Science assumed in the past that both sexes were equal. Nowadays, we are learning about the difference between men and women. Together they are stronger, and this is leading to better performance and organisation. Women train their natural talents and are improving them at work.

Society is developing from families toward individuals. Within the traditional family, communication is decreasing. ”We have less time for being together. Time schedules don’t fit, especially because of the working female partner. Family is becoming a “timer-family”.” (3.2 million households, out of these 965,900 single-person households).

In 1960, only every 10$^{th}$ household was a single-person one. In 1998, one third of all households were single-person ones. The revolution of 1968 created the independent woman who had children without a partner. The question is how this kind of people will develop. Men born after 1968 – will their attitudes change?

At the beginning of the 21$^{st}$ century, a new kind of housewife emerged. The FTM (full-time-mother) is fleeing from unemployment to care properly for the family. As a small company, she has helping hands for housework. These women are more independent in taking decisions. A “Home-Improvement Research Institute” said that women are using “do-it-yourself stores” more and more. Between 1997 and 1999, the sales to these women rose by 20%. In 1997, 7.7% were renovating their bathrooms, in 1992, the percentage increased to 19.2%. In 1997, 50.3% were doing garden work by themselves, in 1999 this had risen to 60%.

The conclusion is that not every woman wants to have a career. A study found that 60% find the new type of woman very attractive. Only 12% are willing to put emphasis on their careers. Being a housewife is not old-fashioned.

The family is changing. Not only the existence of many non-marital relationships is new. Normal marriage is different compared with marriage some decades ago. The family of today has fewer children, and women are working.

More than a third of the marriages of the 70s were divorced in the 90s. 40,000 weddings were held in Austria. In the same year 18,000 couples were divorced. In this environment, the education of children has also changed. Every third child is born illegitimate.

The development of Austrian families: (figures in mill.)

| | 1998 | 2030 |
|---|---|---|
| couples with children | 1.122 | 0.901 |
| couples without children | 0.758 | 0.949 |
| single parent | 0.386 | 0.451 |

Source: APA/STAT, April 2001

In the year 2000, 2.26 million families lived in Austria. In 2030, the number will rise to 2.030. In 2000, 33.5% had no children (757,900). In the year 2030, 41.3% will have no children.

The European countries are stagnating in terms of numbers of inhabitants. North Africans with high birth rates are coming to Europe. The former Eastern Germany had a higher mortality rate than birth rate for the first time in 1962. In 50 years, there will be 25% fewer inhabitants in Europe compared with the percentage of today. (INED Nationales Demographisches Institut Paris 2000).

In the field of new technologies, women were a minority in the past. In the meantime, they have conquered the men's world. In August 2000, more women than men were registered in the internet. (Media Metrix, www.mmxi.com) The growth rate was rather high in categories of women older than 55.

Five years ago, 6% of German-speaking women were registered as web surfers. By the end of 2000, the number had increased to 50%.

The offers for women in the world of internet is growing permanently. Common themes are discussed from a female perspective.

http://www.ceiberweiber.at/
http://internetfrauen.w4w.net
www.diestandard.at
www.woman.de
www.femina.com
www.bguide.com
www.webgirls.de

A woman who is not involved in educating young children is able to do the same work as a man. Statistics shows that pregnancy in the hierarchy of managers is not a high risk for the company. The probability of men leaving a company is equal to that of motherhood.

The proportion of female managers will rise further in the future. In small and medium sized companies, the number of women is already relatively high. Women are taking advantage of modern restructuring programmes. Decentralisation is shifting power to lower hierarchy positions and thus also to women.

Partly, companies want to conform to emancipation trends.

Changes in the socio-political environment enable women to reach management positions.

A study done by the World Bank in 2000 shows that the gap between men and women is smaller. In countries with good female economic power, corruption is decreasing and economic growth is rising. The number of primary school girls doubled in the Middle East, South Asia and in African areas between 1975 and 2000. Moreover, the life expectancy of women improved in the developed countries by 15 to 20 years.

### 3.5 Screenager

"Screenager" are young people who spend most of their time in front of screens. This name was created by the manager of the McLuhan programme at the University of Toronto. Screen is a television screen - passive consumption; or a computer screen - active participation in a virtual world. People born into a modern world, familiar with computers, are more flexible and quicker and are able to think multifunctionally. Brain researchers have proved that the new generation is using their brain in different way from their parents. Parallel processing is not possible. [Pöppel, 2000].

The formal structure of our brain is determined.

The screen and the internet cannot completely replace traditional learning. Tomaso Poggio of MIT (Cambridge USA) proved that learning without experience is not possible.

Within the family, they are equal partners and have more rights than former generations. The power-relationship between parents and children is changing. In the past parents could "order" something, today they must justify it.

### 3.6 Mobility within partnerships

"Information and communication technologies are creating new individual possibilities of acting and deciding for internet users. Freedom in distance and time is changing social relations and opinions.

The aim to take one's own decision to have an exciting life, to enjoy life and to find one's own way of life is a normal attitude. In our modern world, people are living as individuals. In comparison with traditional society, today's people are enjoying more freedom and individuality. In traditional society, individuals were connected with their respective families and groups." [Schwalm, 1998].

More and more countries acknowledge homosexual partnerships as equal. Middle and long-term changes cannot be calculated.

The traditional marriage will be the minority case. "Partners for a phase in one's life " are replacing traditional partners. In the past, marriages existed until the death of one partner. Today, a marriage lasts for an undefined period. Divorce is a normal thing. Partnership is determined by common interests. If interests change, partnerships will be cancelled.

### 3.7 Single people

There are two main points to mention about individualisation:

Individualisation is leading to egoism and hedonism
Individualisation goes along with self-development

People who are used to being alone compensate this situation with more communication. They build up communication networks. The modern technical equipment of communication supports this need. My relatives in New York, no children, have 6 telephone ports at home. “This is a minimum for life.” Each of them wants to be independent when phoning, surfing or working. Mobile phones are not included.

The main event for the development towards small families was the common use of the contraceptive pill, which emerged in 1960 and changed sexual habits. The revolution of 1968 was not a revolution of intellectuals, it was a fight for sexual emancipation.

Life in a single-person household follows a general change in values, which Paul M. Zulehner [Zulehner, 2000] defines in a study. More and more people are trying to make the best of their lives with less effort. This “new Austrian” is mainly interested in himself and aims at everything that will improve his daily life.

This can be seen in:

- no interest in politics and church
- no participation in organisations of any kind
- less motivation in daily work
- fewer marriages
- increasing divorces
- more single people
- decreasing number of children

The Austrian study named such a person “Rosinenmensch”. A similar situation can be found in Germany, a so-called “Ich-Mensch” or “Ich-Generation”. But this is not connected with more egoism.

The development of the economy is going the other way round. In working life, more group-dynamic people are in demand. The single fighter has no future.

### 3.8 The group

Systems are more complicated and allow more efficiency. But the importance of the individual is not so important within this system. Group-work is essential in the business world, but also in the field of education. The group allows that everybody to contribute his strength, weakness must not be activated.

Education is lagging behind this demand. The last group-dynamic education is done in kindergarten, when children play together.

The new tele-learning instruments are introducing a new group-dynamic – the virtual group. My son prepared his dissertation together with Finnish, Australian and

American colleagues, without knowing them personally. The internet brought them together.

Similar work-groups can be found in software production. Time differences are used and so 24 hours can be used to develop a product. When the American goes home, the colleague from Far East takes over the work. When he finishes, the European starts. Together in one group, although only partly working at the same time.

### 3.9 Partnership of convenience

From the traditional point of view, living together is defined as a form of very close relationship. The "connection" is seen physically.

The same motivations are bringing people together.

According to Max Weber [Weber, 1956], we distinguish four motives for forming groups:

Acting in line with certain aims
Acting is determined by ethics and aesthetics
emotional acting
traditional acting

Maslow knows three items for a relationship: "At least three different kinds of human relationships can be distinguished: the dominant-subordinate, the egalitarian and the aloof or laissez-faire." [Maslow, 1987].

"...transportation and communications capabilities improved in the industrial area, maintaining contact with widely dispersed friends and family became much easier, and it became possible to participate actively in communities of interest that were not tied to your home-town." [Mitchell, 1995].

Within the internet, a new kind of "friendship" has emerged. Groups are formed quicker, are partnerships of convenience, and are cancelled after reaching the common goal. These "new groups" are ideal for co-operative self-qualification. Students work together for a defined period. When the learning goal is reached, a new group will be formed for new tasks. Discussions can held only with the respective group member.

"Virtual groups" must have the following characteristics:

- Computer-related communication
- interest groups
- social contacts.

The social relations are based on

- interpersonal relations (friendships)

or

- social identification (bound to the group).

E-communities have a social identity. The continuity of the group, despite member changes, is responsible for this identity. There is a strong togetherness between the group members. Face-to-face communication is not necessary.

The duration of a membership in an internet group is, according to studies, between 20 to 46 months. [Utz, 2001].

People with high internet engagement do not show reduced social contact. They are as integrated in social organisations as people without internet access.

But in the commercial sector, buying groups will also emerge. In the private sector in the form of electronic exchange (e-commerce "consumer to consumer"). In the business world, small and medium-sized companies can achieve buying conditions like those of large companies.

Relations are made quickly and with a certain aim. When the common aim is lost, the group disappears quickly because of the anonymity of the internet. Romantic relationships often end in emotional ones. The internet community is more oriented towards facts.

In the Western World and in America the "family" is disappearing. New forms are replacing the family. Partnerships for a certain period are replacing the typical marriage. Nobody wants to be together with somebody forever. Mobility perhaps requires something new tomorrow. Illegitimate children are a normal situation. More and more mothers and fathers have divorced parents. Law and politics are defining this new situation as " the togetherness of adults and children".

### 3.10 Virtual neighbourhood

The virtual world also existed before computers came into our daily life. Ancient theatres brought people into irreal worlds. The cinema shows us virtual stories - we can cry and laugh.

People in our new computer world can become isolated. They also have the chance to find and intensify new contacts.

The words "place" and "time" are newly defined. In the past, the place was more important than the time. The new mobility is putting emphasis on the time. " It is no longer necessary for people to be together in one place, it is important that share the same time. The criterion is not to be Polish, Swiss or Canadian. One must be able to work with computers, have enough experience in certain fields like rap-music, perestroika and so on. These elements are used when somebody is judged to be "in" or "out".

A communication study has shown that people who are living near each other phone each other more often than friends living far away.

The internet leads to a virtual neighbourhood, where the physical destination is irrelevant. Virtual neighbourhoods are independent of place. The common interest is essential. A friend can have the same interests, but live on another continent. Internet and email with newsgroups allow the combination of interest groups and neighbourhoods.

There is no big gap between virtual reality and real life. Mankind is used to living with virtual worlds. Dreams bring unrealistic worlds into our real world. Machines intensify these effects and document this. Sometimes, when you wake up, you want to reproduce a perfect dream. But it is not possible. Computers can be used to reproduce good and bad dreams and they can be shown to other people.

Higher broadbands within telecommunications networks will open the door for new technologies. Bodysuits and video-conferencing will intensify virtual neighbourhoods. In the world of the internet, everybody can find like-minded people.

Tokyo has created a network area, which simulates new neighbourhood models. Several households deliver certain videos. For example, one family sends a classical concert every Friday at 5 p.m., other families give information about new books.

A married couple in New York play a game via internet while they sit in the same flat. They say it is cheaper to load down games from the internet. It is not a form of social isolation. Storage and update are done by somebody in the net.

The car-parts producer, Frank Stronach, has bought sports channels. His aim is to own sports channels all over the world to allow sports events to be watched 24 hours a day all over the world. A television provider like the above mentioned one can deliver the right programme at any requested time.

Regarding games: with the usage of multimedia, actors and the audience are merging. The audience can follow the movie. Moreover, they can participate in the movie. They can determine the end of the film - a happy-end or not.

After scanning in himself, the spectator becomes the actor. I saw this for the first time in Karlsruhe KMZ (Kultur und Medien Zentrum). Together with a colleague, I entered the virtual theatre. We stood right on the stage, cameras found us and we were included in the game. A fairy changed our outfit, our size – when we were not able to stop this.

"The electronic neighbourhood will influence our lives, our nations and our cultures – but we should act wisely and in the way we want. Our natural instincts and needs will show us the way to use this information market as a possibility to contact people in another way." [Dertouzos, 1999].

The "distance presence" allows us to form new groups and meetings and is changing cultural identity. Communication science and media theory have to define the item" identity" in a new way. "Together" still exists but the physical presence is leading to a different communication intensity.

These new virtual social systems also have a certain unpredictability. They are also changing the basic media experience. "The perception of space and time is remixed, places will be reallocated." [Fassler, 1999].

75% of all inhabitants of the developed countries have not seen themselves in a real world. This leads to wrong interpretations and everybody is left with his own story.

### 3.11 Home

The increasing mobility needs a new definition for your own residence. Family heads invest a lot of money to build their own house. When parents die, children are the new owners.

The relationship to one's place of birth is diminishing. Place of birth and place of death are different in many cases. The style of living is changing. Families are smaller and single-person households are increasing in number. The planners of flats have to consider this trend. Single-person households are often without anybody. They need more technical equipment like automatic care for flowers and automatic coffee machines.

People are always leaving their homes to settle down in a new country. Between 1800 and 1914, 50 million people left Europe and started a new life in America. In the 20th century, the movement was towards North America and from Europe to Latin America. In 1984, the United States registered half a million immigrants. Cities like New York, Los Angeles and San Francisco have 25% foreigners.

Also in Europe, the situation is new. France has 3 million "black people". The number of residents in Austria rose by 1 million due to the political turn in Eastern Europe. Wars are responsible for immigrants. In the year 2000, 21 million people word-wide left their home countries due to war. (Source: UNHCR) In Europe, 7.5 million were victims of the war in Yugoslavia. (Source: OSZE)

One result of making people homeless is to make it difficult for them to speak their mother tongue. New leaders often introduce a new official language that is not the same as the mother tongue.

Every year some million people change their homes. They settle down in a new country and bring along their cultures and religions. Culture is a part of communication. Besides the language, different points of views and experience form the human identity.

In the past, moving groups have not always respected the culture of the host country.

Densely populated regions with better economic preconditions are preferred for new homes.

How many people can planet Earth bear?

The population explosion is continuing:

- 12,000 years ago, the population of the world was 5 to 10 million people
- During the 17th century, population started to grow rapidly
- In 1804, the world's population was 1 billion
- In 1927, 2 billion; the reason was the industrial revolution and increased agriculture
- 1960: 3 billion
- 1974: 4 billion
- 1987: 5 billion
- 6 billion
- UNO is estimating 8.9 billion by 2050

At the moment, the birth rate is stagnating. In 1998, the increase was 78 million – 136 million were born, 78 million died. At the beginning of 1970, women in less developed countries had 5 children on average, at the beginning of 2000, only 3. Diseases like AIDS are also reducing the population.

The new virtual groups will not replace the traditional home. The ethic and the nation are not disappearing as predicted. If you don't accept the new media and communication tools, you will fail in continental, transcontinental and trans-cultural communication. You will not be able to cope with global networks and their local presence. This situation threatens parts of the world that are worse off because of educational, infrastructural, economical and political preconditions. But thus leading not automatically to a development at the cost of non-industrialised countries. The changes in the Asiatic and Pacific regions showed us this. Processes like in Europe show that changes can heavily influence the traditional industrial regions. [Fassler , 1999].

Globalisation makes it more difficult to distinguish between states. Languages can be used as borders but minorities in neighbour states are arising.

Culture is one of a kind. But internationalisation reduces the difference between different cultures. John Stratton says: “Nation-states seek to be homogeneous and define themselves as different from other nation-states.” [Stratton, 1996].

### 3.12 Cities

In the 19th and 20th centuries, cities changed fundamentally.

Flight from rural areas was the reason for this situation in 1900. People without work were forced to go to cities. Thus, the population in the cities in Germany increased. Between 1815 and 1865, the urban population increased from 23 to 45 million, by 1910 to 65 million.

This flight was more significant in the Unites States. For example, Chicago had 300,000 inhabitants in 1870; 500,000 in 1880, and 1.1 million in 1890.

Changes in transport and communication technologies were the changes at the beginning of the 20th century. New infrastructures emerged, and so life was different. The functions of housing and streets were newly defined. The communication tools of today need the same process. Cities are not longer defined by borders, they are defined by functions. In the Middle Ages, the only possibility for people to get in contact with each other was personally. Transport was the important factor. Old cities with broad streets and squares were constructed for personal communication. The infrastructure of telecommunication is changing this situation.

“Today, this ancient idea – reflected in the Oxford definition of a community as a “body of people living in one place, district, or country” – is eroding; a community may now find a place in cyberspace. The new sort of site is not some suitable patch of earth but a computer to which members may connect from wherever they happen to be. The foundation ritual is not one of marking boundaries and making obeisance to the gods, but of allocating disk space and going online. And the new urban design task is not one of configuring buildings, streets, and public spaces to meet the needs and aspirations of the civitas, but one of writing computer code and deploying software objects to create virtual places and electronic interconnections between them. Within these places, social contacts will be made, economic transactions will be carried out, cultural life will unfold, surveillance will be enacted, and power will be exerted.” [Mitchell, 1995]

Today urban population is increasing by about 60 million each year. In 1995, 80 percent of the European population was living in cities, world-wide the percentage was only 45.

The future city?

Skyscrapers, satellite cities; vertical expansion – elevator – versus horizontal expansion by car or public transportation facilities?

One point is certain: cities of the 21st century will not have a centre, infrastructure will be equal. Inhabitants and their needs can be distributed equally because of telecommunications. European cities like Paris and Vienna can hardly be newly designed. But new cities will have a new outlook. In South China – in the North of Hong Kong – 10 cities have a common network. At the beginning of the 21st century they had 16 million inhabitants. In 2020 they predict 36 million. Such "big cities" will emerge because of networking.

| City | Population |
|---|---|
| Mexico City | 18.8 |
| Sao Paolo | 20.8 |
| Lagos | 24.2 |
| Karacho | 18.7 |
| Bombay | 27.7 |
| Peking | 18.7 |
| Shanghai | 23.8 |
| Tokyo | 28.8 |
| Djakarta | 28.8 |

population in 2015; figures in millions

To compare the above mentioned figures - the cities at the beginning of the 20th century:

| | |
|---|---|
| Chicago | 4.2 |
| New York | 1.4 |
| Paris | 3.3 |
| Berlin | 2.4 |
| St. Petersburg | 1.4 |
| Vienna | 1.9 |
| Tokyo | 1.5 |

population in 1900; figures in millions

Cesare Marchetti found a relation between the maximum size of a city and the respective transportation possibility. The inhabitant of a city wants to reach every place from the centre within one hour. In the Middle Ages, the distance was 3 kilometres, today by car 80 kilometres.

The Viennese traffic planner Prof. Hermann Knoflacher is of the same opinion. According to him, people have up to three journeys per day on average, which take 70 to 80 minutes.

But the houses in the cities are also undergoing changes. "Smart Homes" are homes with an internal infrastructure. Data exchange with service providers is rapidly growing. According to a study by Siemens (www.siemens.com/mobile-business), this market will have a volume of 37 million Euro in 2002. More and more households have a network:

| year | million households |
|---|---|
| 1998 | 17 |
| 1999 | 28 |
| 2000 | 42 |
| 2001 | 52 |
| 2002 | 68 |
| 2003 | 78 |

### 3.13 Information and communication technologies in the field of education

A global network of electronic media is creating new preconditions which exceed the traditional channels of education, the reading of books. Electronic networks are creating situations in which traditional systems have no chance.

Knowledge which emerged in the past is now transferred via networks. All knowledge is available and transferable. At the beginning, technical support helped to produce information, now it is used for selection and distribution.

In the last 20 years, we were dazzled by technical innovations. Today, we are thinking and using these technologies. Technical knowledge is a part of our lives.

The new possibilities of telecommunications are creating euphoria and anxiety at the same time. People are frightened of losing their jobs, but feel euphoric about the new possibilities. Global networks are offering a new kind of learning. Group-dynamic learning, co-operative self-qualification are supported by the new media. Technology often plays the necessary administrative part of the teacher. The teacher himself, who often is not willing to quit the position of the leader, is now able to assume the functions of coaching. He is guided by the technological items and is forced to change his role in the field of teaching.

Technology enables us to cope with the huge amount of knowledge.

The surplus of information is becoming the enemy of the spirit. Information alone is not knowledge. Selection and assessment of information are important.

In the near future, nearly every household and every teenager will have their own personal computer. More than 90% of PC-users have a CD-Rom drive and a modem. They are prepared for communication with millions of internet users.

In Europe, emphasis is being put on the digitalisation of telephone networks. On the basis of ISDN and ADSL, a data-highway is emerging. By

- a digitised public network
- digitised “in-house” transfers and
- respective distribution of terminals

the preconditions of modern education systems are being established.

Education networks should be a part of national and regional networks. Isolated from other networks, they will not have the necessary success. The concept of Lower Austria will show this: via the same backbone-net, the population receives information about the economy, administration and education.

A complete education network has to have three parts:

The first is a net for universities and academies. It addresses specialists and teachers.

The second one connects the places of education. This net helps to exchange information between them. Common databases, multimedia teaching programmes and administrative software for the “company” school.

The third net is used by students and school-children. In addition to the traditional education, assistance in learning is given. Normal homework, especially, can be modernised by the network PCs. Our children are trained to become self-sufficient. In school, they learn to survive as individual. Individuals are assessed. But economic life needs group-dynamic people. The last group-dynamic education is given in kindergarten. The PC could help to promote group-dynamic homework. Via PC, the student has contact with others and so they can solve a certain problem. They can also ask teachers to help. In times of high unemployment among teachers, this system can help to give private coaching. It would represent a cheap possibility to give the necessary assistance to schoolchildren, and allow unemployed teachers to earn money.

## 4 Intensive communication

“The modern communication society is defined by a continuous expansion, acceleration, intensification and globalisation of communication. The number of communication processes is increasing, the time needed is shorter and more and more people are involved in this new communication. Moreover, the range of communication is reaching the whole world.” [Schwalm, 1998].

This development can be proved by figures. The advertising consumption in the United States doubled in the second half of the 20th century:

| Time | Media consumption in hours/day | spots per day |
|---|---|---|
| 1942-1964 | 4.4 | 76 |
| 1987-2000 | 9.0 | 150 |

Source: Advertising consumption U.S
Average values for Americans
Advertising Research Foundation

But new media are not replacing the old ones. Norway has the highest internet density and at the same time the highest rate of newspapers and books read. It is more like “new media are completing and promoting traditional media.”

Similar results can be seen in the United States. (“International Demographic Inc.” in Houston) People surfing frequently in the internet are also often watching television:

| On-line minutes | TV minutes |
|---|---|
| 180 | 197 |
| 100 | 156 |

The same proportion can be found in the field of print media: intensive surfers are spending a lot of time with print media.

Online-readers are eager to learn. According to a study, 66% of online-news readers regularly consume news, but only 74% of “non-onliners”.

Two million Germans consume television programmes 7 hours per day. Other people have no TV-set and are refusing this technology.

Time is fixed. We measure it in seconds, minutes and hours. For special reasons, in days, weeks, months, years, decades and so on. In spite of these measurements, time is relative for people. The minutes that seem longest are those for children waiting for Santa Claus. Examinations are longer when you are not prepared properly.

Children want to become older to have more rights. This process needs a lot of time. When you are older, one birthday follows the next very quickly. Time is made transparent by clocks. Time is not absolute.

Telecommunications and electronics are changing the time factor. New technologies measure the time exactly. With electronic networks, distances are shorter, time is eroding. A letter needs more time to be transported than the time to react to an email or facsimile. In the case of video-conferencing, there is nearly no time to react.

By accelerating time, people become more immobile. This has a great impact on our economy and has a certain fun-factor. Many people enjoy this development, others reject it. 15% of all Americans are in down-shifting processes. They want to earn more, to work less and to have more spare time for private matters.

There exist mixed couples of accelerators and decelerators – managers and housewives.

This effect will continue in the future. Marriages between people with different religions and different opinions.

The “email manager” reads his correspondence at any time and in every place. In former times, managers returned to the office to dictate. Managers-per-email have accelerated the processes. In past times, managers were connected by their secretaries. Nowadays, everybody dials by themselves with mobile phones.

The virtual world offers more possibilities. Special assistance is created in the network. The personal networker is designed according to our ideas and tastes. This virtual assistance buys in the net for us or chooses the right information. Electronic people, working for us.

Cocooning. People are not forced to go out. The computer screen is enough. Food can be ordered by internet. Internet and telecommunications can keep people at home. In spite of this development, sporting activities are increasing. We are more mobile, but are using technologies to move less.

Networks are moving to “ubiquitous computing”. Things and objects are integrated in networks. They are called “smart objects”. Processors are cheaper and smaller. Wireless communications and sensors are making contact easier. The “Law of Moore” will exist for the next five to ten years. It says that the storage and processing units of computers will double every 18 months. Energy technologies are worse off. They are growing only 4 to 6% per year.

Humans are only prepared to develop themselves to a specified extent.

It is not necessary for things in our lives to have their own processing capacity. A bar-code of a machine can be read by a mobile phone taking the information from the internet. Every “thing” could have its own homepage, describing itself.

After the Second World War, our economic system changed completely. This also had an impact on law, freedom and democracy.

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