Essay

Towards the Creation of a Universal Conscience

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How will the information society change our lives? What will be the basic consequences for political organization, economic growth, personal relationships, home life or individual behaviour? In the preliminary report we are submitting to the Club of Rome, we have tried to suggest some of the questions posed with regard to this phenomenon, on which too much ink has already been expended, often blotting out the landscape and confusing perspectives.

The information society embodies all those characteristics which define the concerns and objectives to be analysed by the Club: **complexity, interdependence, unpredictability**. It is a paradigm of our tasks and concerns. Perhaps no other subject can encapsulate so clearly the evidence of a world whose main trait, nowadays, is the interconnection between the acts of every person, of every group, of every institution, and the fate of others.

Too much noise

In recent years, the inhabitants of the suburbs of many cities have been victims of an unpleasant experience. They chose to settle away from the city centre, fleeing from pollution and traffic, set on enjoying the almost country-like peace and quiet of certain out-of town areas. Today, in many cases, they find themselves surrounded by motorways, prisoners of turnpikes, bridges and clover-leaf junctions, which obstruct their view of the countryside, turning it into a conglomerate of cement and smoke. They have been forced to install double glazing in their homes, and reinforce the fences of their gardens with special devices, in order to thwart the deafening noise caused by neighbouring roads. Anonymous beings race noisily along, on their way home from work, where they too will suffer the same syndrome of being attacked by the

environment, before they, once more, take refuge from aggression in those small havens of peace where they live. Simutaneously victims and executioners of the progress of road communications and means of transportation, they cannot do away with something that offers them such great advantages, even at the cost of tremendous sacrifice.

However loud the noise that emanates from main roads, it is, however, infinitely less than what, nowadays, is caused by what are known as information highways. When distinguishing the foreseeable consequences of their development, we are also faced with the temptation to seal our windows and turn a deaf ear to the distorted voices which prevent us from reflecting on this end-of-century revolution, described as the main factor of the next millennium. Obviously, this would be an impossible and cowardly attitude, similar to that of the ostrich, and totally unacceptable. But neither can we be so naive as to assume that it is possible to meet the challenge just like that: it would be like diving into a swimming pool without knowing how to swim.

The global information society is a fact which is already here, which belongs to us and to which we, without doubt, belong, which surrounds us on all sides, overwhelming us with its wealth, seducing us with its promises, and assaulting us with its mysteries. This future, now so close that is already part of our present, is being debated today in all scientific, political and humanistic forums. The time has not yet come, perhaps, to draw up all the answers, but at least we can define the questions and place them within the likely context in which they will arise.

Hurry! Hurry!

The fundamental changes in the new information society are determined by the **speed** at which these changes are taking place. **Speed is a constant in the system**:

- Σ speed in the transmission, almost instantaneously, of information through the network;
- Σ speed in the changes and improvement of the system, in both the *hardware* and *software* of machines;
- Σ speed in the incorporation of users - in less than ten years, the number of Internet users will increase from zero to one hundred million, and in the case of digital television, from zero to several tens of millions. No other invention in the history of humankind has experienced such rapid progress.

Speed is what makes the phenomenon revolutionary: so many changes in so little time prevent an orderly evolution from taking place. What is most

serious is not that this leads us to make mistakes, but that it makes it difficult, to a great extent, to guide and control the process. Nevertheless, the modern and developed community is characterised precisely by its sovereignty over the events which affect it. Speed endows decision-making with a rhythm bordering on improvisation, if not bewilderment.

In the industrial sphere, products we believed to have a widely accepted presence in the market, such as CD-I[1], have not been successful. There are still serious doubts regarding the future of the CD-ROM and its use. And the development of cable, in countries where this has not yet taken place, is compromised by digital television via satellite direct to the home.

From the legal angle, legislation becomes rapidly obsolete, and the ability to side-step rules increases. In politics, leaders find themselves forced to adopt immediate decisions on all occasions, as if in a permanent state of war, in the heat of battle, and on matters of which they are rarely aware. Commercially, sales are measured by the second, as in the case of television audiences.

With regard to the contents and material that flow through the networks, speed also suggests the *voracity* of the system, against which producers are finding themselves increasingly impotent when attempting to satiate it. The wealth of information is, among other things, a consequence of the need to constantly feed the monster.

Living at top speed appears to be the fate of new generations, and in any event, is the hallmark of the information society. What occurs in the Tokyo stock market has an immediate impact on bulls and bears in Western markets, and each of them, in turn, has an influence on the domestic decisions on savings and investment of hundreds of millions of people. Thousands of millions of dollars are transferred, in a matter of minutes, from one place to another in the world, causing monetary crisis, sometimes enrichment, and most often ruin.

Speed is contrary to reflection, it prevents doubt and hampers learning. **Today, we are forced to think more rapidly, rather than thinking more thoroughly**. In fact, there is no better time to think than when it is too late to do so.

The immediacy of the process tends to destroy the notion of **time**. For decades, humankind has been able to side-step time zones, traveling faster than the speed of sound. Today *bits* do this at the speed of light, regardless of whether they are transporting films, information, data, words or music. In this way, the time machine, which permits us to move from one moment to another, is an invention that has almost been accomplished in cyberspace.

But not completely: if, on the one hand, it appears that we have conquered time, on the other, in our daily lives the lack of it will end up destroying us.

This lack of time suffered by modern-day man and woman - worked to death, robbing minutes from the clock, unable to keep abreast of events given the enormous number of books, newspapers, radios, and televisions that exist - contrasts with the elimination of the concept of time in the development of info-lanes. Here, time disappears, but not for those passing through them.

The virtual world is a world without dimensions, because it is not made up of atoms. Time does not exist, but neither does **space**. It is always here and now, at all times and in all places. Both notions blur and merge together, generating a different and fleeting universe. References change. Only those who understand the phenomenon, which is far more than a metaphor, can enjoy the opportunities offered by new technologies and defend themselves against their risks. In cyberspace, **frontiers cease to exist**, be they political, geographical or of any other type. This is consolidation of the **global** market and planetary culture.

Boundless growth

Or at least with no known bounds. The Club of Rome has endeavoured to remind us that the resources of the planet are not endless, but, **with regard to communications, growth is continuous** and almost unlimited. During the period 1985-1995, international phone traffic more than tripled, mainly due to the spectacular development of Internet and to mobile telephony. It is estimated that by the year 2000, there will be more than 100 million Web users and more than 250 million subscribers to cordless, analog or digital telephones. With neither geographical nor time frontiers, the communications society is beginning to reproduce patterns of infinite growth.

Convergence of technologies is essential. Compared with the substitution technologies to which we were used - the car replaced the stage-coach, the plane the railway, the fax, mail or telegraph - the digital world led to the integration of all these. **Info-highways** imply a combination of telecommunications with computer science and the media. It is unlikely that analog systems will be completely replaced in the short term; they will survive, on many occasions, as an alternative to digital systems. But the problems we are facing are not technological; instead, they are of an economic, social, political and human nature.

The trend among technologists to organise society in line with models for the functioning of machinery, or according to the applications they offer, presents a serious threat. The information society poses a priority challenge for sociologists, psychologists, educators, politicians, philosophers, economists or

jurists. It is they, rather than physicists or computer experts, who are the main addressees of the questions we are raising today, and who must provide the answers.

Many of the foreseeable developments are linked to the **bandwidth** we are able to use in telecommunications. Until now, we have worked mainly with a narrow band, which restricted the capacities of the system. The hardware and contents industries will experience an almost unimaginable impetus once the information society becomes based mainly on **digital compression** of signals and on the use of wide-band networks and terminals.

It is justified to harbour doubts with regard to the advisability of duplicating optic cable systems for the sake of commercial competition and liberalisation of telecommunications. The traditional role of telephone companies will be transformed, but we must ask ourselves what limits should be placed on the activity of certain companies which until recently were monopolistic and continue to be protected by public powers.

In view of the battle that some envisage between satellite and cable, we can imagine that, in the medium term, both networks will be complementary and not rivals. It is matter of knowing whether it is necessary to duplicate cables or whether just one will be sufficient to satisfy all levels of demand. Who will be the owner and how he must act in relation to operators and content providers is a matter that is yet to be settled. But such an expensive multiplication of infrastructures seems unnecessary, especially in countries with limited economic resources.

As to terminals, much will turn on the sector's decision as to the advisability of introducing only one which will integrate the different applications and will be useful for all multimedia services. **The convergence of the PC and the television set** is taking place slowly but surely. Discussions on the need to generate a standard, universal, digital set top box, and the benefits this could entail for the market, will attract a great deal of attention from those involved. The introduction of Internet through digital television systems, in a relatively short period of time, will have an impact on the present competitive context.

Regulating chaos

The special features of Internet make it a prime suspect of contributing to **chaos**. The disappearance of apparent hierarchies in the network and the autonomy of its growth tend to leave more than a few decisions in the hands of users.

The chaotic aspects of the process are defended on occasions as something

positive and valuable. But, in the midst of the disorder, more defined and accurate forms of control arise than many believe possible.

On the one hand, for the sake of liberalization, governments and supranational institutions have undertaken a hasty race to establish rules which will facilitate deregulation. This obvious paradox is nothing new in the history of public administrations, and certain countries have even created Ministries to do away with bureaucracy. Worst of all, regulators perform their task guided by concepts that are alien and remote from the problem, next to the undemocratic temptations of some governments to interfere for their own political benefit in the running of the new media companies. Many rules are adopted when it is too late for them to be of any use - as in the case of regulation of high definition television in Europe. The rhythm and problems which condition the work of officials have nothing to do with the rate of development imposed by industry and consumers. **Regulations should be kept to a minimum lest they prevent or hold back the growth of new technologies.**

One of the crucial issues relates to **comeptition** rights and to **anti-trust legislation**. Both the American Federal Government and the European Commission are paying a vast amount of attention to these aspects, given that the telecommunications sector has always developed either through monopolies or oligopolies. There is a widespread belief, especially among European agents, that a truly open competition system would serve only to further delay the process and to contribute towards corporate mergers in the medium term. Indeed, they suggest that the investment necessary to meet the global dimensions of the market will not permit the survival of the weakest, who will eventually either close down or sell out. Because of this, some understand that it is not the market but the State, once again, that must assume the burden of directly sponsoring the development of networks, possibly with public investment. Even though this is not likely, public authorities must guarantee **equality of access** to all citizens.

In any event, in a global world, the trend is to create **global corporations,** for which the target market is the entire planet. This universalisation process, which began decades ago, is in fact a process of Americanization, in which political and economic power is accompanied by technological and cultural power. **Corporations will be so large** - indeed, they already are - **that they will be able to challenge the power of governments**. In many countries, governments act submissively and complaisantly towards large companies, without whose presence their nations would be unable to emerge from technological backwardness and under-development. The State will reduce its sphere of intervention, will minimise its territory and, by way of possible compensation, will attempt to exercise a greater control over these stricter limits. It will have

a greater power over fewer things: more authority, more coercion, more arbitration, over fewer institutions and fewer individuals. **Power will be displaced towards large companies,** with no democratic representation and with no binding commitment towards common interests.

The convergence of technologies, complementarity of the media and the integration of activities, as well as the need to increase the dimension of operations, will foster **alliances** among companies, mergers and acquisitions. Fewer and fewer persons will make decisions with a bearing on a higher number of topics, throughout the planet.

A global market will require global laws. **International agreements** are necessary and urgent on certain basic issues, such as control and liability for contents or **copyright**. Attempts at establishing censorship in the network appear to be doomed to failure, but the dream of absolute freedom of movement makes no sense. We have already lived through times when censuring practices were directly imposed by large companies, which do not have to answer for their conduct before parliaments. It is not possible either, in the name of freedom, to remain passive in the face of crime, or leave children or the weak unprotected. Above all, it is very important to find ways to ensure the **protection of privacy,** against both network rulers and the pirates who frequently assault it. Similarly, it is necessary **to make economic transactions safe,** using valid and widely accepted **coding** systems.

The prosecution of crime in the networks will not be easy, since it is not only rules that are necessary, but also the coercive capacity to enforce them. The emergence of new types of delinquency, based on the existence of new forms of operation with technology, demand a greater and faster activity by legislators. But the matter is complicated by the differences, often wide, that exist between countries with regard to the legal qualification of specific facts.

At any rate, **the State**, either voluntarily or under obligation, **is increasingly losing sovereignty** and the global information society is pushing it in the same direction. This does not mean, ultimately, the absence of government in the networks nor that the market will remain solely at the mercy of multiple autonomous decisions. **The concentration of power at a multinational level in a few companies which have the money, the technology and the contents of the communications, information and entertainment media, all at the same time, is shaping the real *new international order*,** and we are not yet aware of the consequences.

A corollary could be the widening gap between poor countries and developed nations, the boosting of the dual society, even within one country or city, and the emergence of new classes: the info-rich and the info-poor. **Market concentration** also affects corporate mergers: 85 per cent of the world vol-

ume of trade in telecommunications takes place in the United States, the European Union and Japan. Opportunities for employment, education, leisure and welfare for those who are part of the system will increase almost exponentially, while those left outside will witness how their marginalization and alienation increase in relation to the society which they are trying in vain to join. This discrimination could have particularly damaging effects in the area of **education**, where there will be intensive investments and activity in info-lanes. The Club of Rome has repeatedly insisted that traditional systems of education are obsolete and are giving way to "the learning society". The global communications society, using phenomena such as Internet, but also due to - or thanks to - the strong boom of audio-visual methods, is already determining the standard of education of people. **Governments and international organisations must endeavour to encourage and guide investment in education towards these areas**, if they wish education to continue to be the main equalising factor of modern society. At the same time, we must not place excessive trust in the machine and the ability of those using it to teach themselves. *The figure of the teacher will continue to be essential*, and one of the basic problems is to guarantee teachers sufficient training to enable them to be a part of cyberspace without making fools of themselves in front of their pupils.

Business opportunities offered by new technologies are yet to be discovered, although no one seems to doubt that they exist and are abundant. Regarding the large operators, network owners or hardware manufactures, high initial investments will be required, which will be determined by the size of the markets. The possibility of boosting **electronic commerce**, in any of its forms, will also require safe methods of transaction and legal instruments that do not yet exist. National and international authorities are distrustful of the self-regulation that the agents themselves could perform in these areas, and their actions are rather obstructionist.

But, sooner or later, what are mistakenly called information highways will change our way of working, our way of shopping and our way of doing business. Regarding **employment**, it can be expected that, in the short term, information technologies will contribute towards the **destruction of jobs**, although at long-term they could generate new jobsother which will require a higher skill level. Hence, it is important not to widen the educational gap among individuals and classes. The concern so often expressed by the Club of Rome over the future of employment will deepen, at least in the immediate future, given the influence of new technologies. The global information society does not, *per se*, lead to job creation, but it does imply **a substantial transformation of the way of working** of many people. It will help to decentralise work centres, it will encourage the use of the home as an office, it will be responsible for a

growth in self-employment, it will contribute towards making working hours more flexible and will thoroughly modify the organization system of companies, changing industrial relations within and without. It will also facilitate many productive processes (in the past, the drawings and calculations involved in the design of a combustion engine could take months; nowadays, thanks to digital infography, it can be completed in a few days.)

In the commercial area, info-lanes will encourage the **disappearance of intermediaries**, reducing distribution costs, and production costs at origin.

Homo videns

The global information society is deeply affecting the **image culture**. While the enlightened community works with abstractions, the spread of information by audio-visual media hinders the elaboration of concepts and their development: it upsets our way of knowing and thinking. The greater convenience of learning through television contrasts with the difficulty of assimilation this entails.

Starting with the invention of the alphabet, our civilization has been built, in all respects, on systems of knowledge and expression which are now, at least partly, in jeopardy. For the time being, the consequences are impossible to imagine, but we can make some hypotheses on the basis of certain patterns of behavior that we can already observe.

The image culture is closely linked to that of **entertainment**. In the audio-visual era, we often see not so much things that exist, as things that exist for us to see. The notion of spectacle is all-embracing: in politics, justice, economy, religion. The existence of more free-time - if this notion still has a place in a world which is progressively losing all dimensions - will encourage the **leisure and entertainment culture**, the boundaries of which will tend to blur as they take over a greater part of everyday life. Today's ***homo videns*** is becoming more and more ***homo ludens***.

The realm of paradox

Paradox is one of the characteristics of our civilisation, which will, probably, become more acute during the next millennium, and to which cyberspace will contribute to a large extent. Socially and politically, we have already seen some of the contradictions that arise from this.

Along with a planetary and global conception of our existence, individualisms and localisms are also increasing, which seem to find their signs of iden-

tity among this mediatic magma of light and shade. The famous slogan "think globally, act locally" thus becomes fully meaningful. As does its concomitant: in a world moving towards concentration and unity, nationalism, racism, particularism, tribal traits, are flourishing.

In the same way, used as we are to receiving abundant information, we are unable to affirm that we are better informed by the mere fact of being more informed. An excess of data can be a direct cause of our ignorance.

In a different order of things, whereas millions of cybernauts submerge themselves in the Internet convinced that this is the answer to their longing for liberty, the response to authority and personal autonomy, the trend is clearly towards concentration of power and control of the system by the few. And the user, enthusiastic because the network allows him to perceive himself as a citizen of the world and to become a kind of universal speaker, experiences at the same time a tremendous withdrawal into himself, bordering on autism, in relation to his closest environment, besotted as he is with a virtual and imaginary universe which removes him from his closest relationships: his family, his neighbors, his friends. Culturally, the autonomy of each individual is preached, along with a kind of cooperative authorship which results from the use of hypertext and hypermedia, but at the same time *homogenization* is growing. The disappearance of sound values and safe criteria, as a result of the absence of hierarchies in the network, also rules out any possibility for reflection and doubt. When everything is a response then nothing is. Therefore, we are told that the end of the book and of the alphabet is imminent as the result of a process which, for the time being, merely produces tons of paper and hundreds of new books, and whose maximum benefits are obtained thanks to the manipulation of something very much like a typewriter.

Finally, **interaction**, the Internet's major contribution to human behavior, is firstly a compulsive and nervous attitude which ultimately often becomes **passivity** on the user's part, not wishing to drown in abundance. The result of all this can be either the reproduction of a *sui generis* world, in which paradox acts as a driving force for creativity and genius, or the triumph of confusion. This latter circumstance bring to mind Eliot, when he said that he did not remember at what time of his life information replaced knowledge, nor when knowledge replaced wisdom.

But the greatest paradox is that emanating from our own reflections, This complex web of cables, satellites, networks, computers, televisions, set top boxes and electrical impulses which make up the infrastructure of cyberspace, harbours, together with the suspicion regarding its behavior, the expectation of its fertility.

If we are able to defend ourselves against ghosts, and to keep pluralism and

diversity within planetary culture, we will be contributing towards what we might call a **universal conscience**. In other words, the attainment of valves and the establishment of minimum parameters, commonly accepted, which will enable everyone to see himself or herself as equal citizens of the world, with the same rights and obligations this entails.

In order for something like this to occur, it is necessary to encourage **dialogue between cultures**, to oppose homogenisation resulting from the victory of some civilisations over others, but also to deny an absurd synchretism, without preferences or categories. No one can ignore the progress of history with regard to the guarantees of human rights and the basic principles of democracy: universal suffrage, government by majority, respect for minorities.

The information society can and must contribute towards the dissemination of these values by practising **tolerance** and **dialogue**. In the words of Jacques le Goff, director of the School of Higher Social Studies of Paris, "it is not a matter of reducing diversity to unity, but of achieving a convergent diversity"[2] - a difficult task, which will require political willingness and clear convictions in the quest for conditions that make **peace** both feasible and lasting. This cannot be achieved in a world of increasing differences and the clash of ideologies.

The use of **info-highways** as a way of improving understanding among the different nationalities, cultures and religions can only form part of a positive contribution to the development of the under-privileged, regardless of whether they live in less-developed nations or in the slums of the capital cities of rich nations. The **digital society** can be a fantastic instrument for **egalitarianism** without the need to annihilate the plurality of options and proposals. But it can also become an additional tool of domination. This is the most sublime and terrifying paradox in modern life. Humankind, the inventor and master of technology, is now contemplating the threat of becoming its slave. In order for this not to occur, it is necessary to continuously assert the leading role of Man in the universe. The very fact that we have to repeat what is obvious highlights the lurking danger. To overcome this, it is necessary to spand vast sums of money, both public and private, which will stop the digital information society from widening the gap between cultures and systems. And to invest continuously, even stubbornly, in the training of citizens with regard not only to the use of new technologies, but also with regard to the consequences of their application.

Notes

1. An interactive compact disk.
2. Interview published in EL PAÍS, 30th August, 1997.