
OPENING

by Prof. Giovanni Jacovitti, University of Rome "La Sapienza", Rome, Italy.

This Symposium is one of the forty Symposia of the European Meeting of University Professors which take place today in the various Universities of Rome on the occasion of the fiftieth Anniversary of Rome Treaties (1957-2007) (nineteen-fiftyseven twothousand-and-seven). The theme we have chosen for our Symposium is a very important one: it is based on the technology of our time today and with that technology we are faced all the time.

The digital evolution and the evolution of the Information and Communication Technologies is our everyday experience. In order to understand where this evolution takes us, we will look at it according to the following three perspectives: information, intelligence, and ubiquity.

The essential idea of this "digital era" is the encoding of every descriptive expression into a sequence of bits. And, indeed, in the title of our Symposium, the term "Information" expresses the capability of gathering and structuring the description of concrete and virtual objects.

Then, the term "Ubiquity" refers to the availability of information and communication technologies everywhere and at-all-time. Ubiquity is realized by the great advances of telecommunications.

The terms "Information" and "Ubiquity" characterize in a quantitative sense the evolution of the Information and Communication technologies. An typical example which characterizes this evolution is Moore's Law.

The term "Intelligence" refers to the qualitative aspects of the technological evolution. These qualitative evolution is somewhat more difficult to characterize and understand than the quantitative evolution. The term "Intelligence" refers, in particular, to the ability of making inferences and logical deductions on the available data. In a first phase (approximatively, during the years nineteen-sixties and nineteen-seventies) Intelligence was limited to ordering of data. In a second phase, during the years nineteen-eighties, mainly due to the diffusion of personal computers and the increase of their performances, they were strongly integrated into telecommunication systems.

Later, the ability of making inferences and deductions has been applied to the morphological description and manipulation of the encodings of the objects to be shared in a human communication, such as images and sounds. This fact made us to enter the new era of "multi-media communications" (recall the MP3 and MPEG4 encodings).

Finally, today, tools for logical inference and deduction are an essential part of automatic systems for interpreting the content and the meaning of communication, knowledge, language, and autonomous systems. A few talks will deal with the point.

The evolution of the Information and Communication Technologies is strongly tied to the development of other technological advances. We will look in our Symposium at the advances in air-transportation and telemedicine. These two fields are very important, but of course, many others could have been considered such as those related to space-technology, energy-technology, industrial development, and environmental care and protection.

As the great technological growth due to the industrial revolution and the use of atomic energy, also the evolution of the information and communication technologies provides great potential opportunities, some of them already visible, some still hidden to us.

As the other kinds of technological growth we are witnessing now, such as the growth of biotechnology and nanotechnology, we have always to take into account the forces which drive that growth and we have to monitor the tools and techniques which are used.

Let me mention what I recently said on the occasion of a seminar on the "Rationality of Technology" (See "Genealogia, Ontologia, Morfologia della Razionalita`" in "Fede e Ragionamento dopo Ratisbona", Seminario di Studio del 24/01/2007):

The need for a strong technological development inevitably becomes the need for a strong development of powerful and sophisticated tools, which are the basis of further technological enhancements, according to a scheme of cumulative growth. This need of a higher efficiency of tools may become a primary, absolute requirement, free from all external constraints. We are then running the risk of a "technological absolute" which may modify the goals of the technological growth. In other word, we run the risk of "the heterogeneity of aims", whereby in an unconscious manner we work towards undesired goals.

Our everyday life gives us many examples of possible heterogeneity of goals. Those examples come from the areas of data protection, privacy, freedom of expression and choice, promiscuity of content, digital divide, safety of control systems.

In order to clarify some of these issues we have dedicated two contributions of our Symposium to the analysis of social and ethical questions arising from the use of Information and Communication Technologies.

I hope that our Symposium, through the speeches of our invited speakers and everybody from the audience, may offer a useful, meaningful contribution to the understanding of some issues concerning the Digital Evolution.

SLIDES

European Meeting of University Professors
21-24 June 2007. Symposium C8.

The Digital Evolution: Information, Intelligence, Ubiquity

Information: gathering and structuring descriptions

Ubiquity: everywhere and at-all-time

Intelligence: inferences and logical deductions

Evolution of Information and Communication Technologies

- ordering of data
 - personal computing and networking
 - multimedia communications (mp3, mpeg4)
 - Intelligence: semantic inferences
-

- Technological Evolution as independent activity

- Risk of being driven by external forces
("heterogeneity of aims")

- Social and ethical questions arise.
