

Artificial reality: making knowledge live with computers

Computers are becoming more powerful and cheaper. Every day new announcements and new companies astonish experts and non-experts.

For companies to sell computers is becoming more and more difficult: margins decrease, the costs of the computer units decrease. In order to survive, companies have to employ less people to sell more units. The vendors are faced with an incredible variety of products, hardware and software. Computer users have given no time to learn how to use a computer model. Meanwhile a new one is appearing: it is certainly better. Frequently the maintenance cost of the (few years) old computer suggests to change and to acquire a new model.

But the process has a bottleneck: the cost of the instruction necessary to introduce new people into the computing field. How to solve the problem? Technology has produced the problem, technology will solve it. The solution seems immediate: to minimize the instruction needed to use computers. Obviously, experts will always require competence, but beside competence, experience is required from them. In fact, in designing computers and information systems experts have to give continuity to different generations of computer technology: the migration of data, software and organizations from past to future through new technologies are extremely difficult problems. If the experts fail, costs increase and competitiveness of the organizations decreases, being these public or private.

But cognitive technologies have shown that, if things are represented on the video display and are handled directly as they were real objects, the cost of instruction can be decreased: the matter is to have acquaintance with things and concepts represented on the video. No complex communication language is required: the video is the theater in which the user identifies himself with a pointer moved by his hand. The technology that the Apple Macintosh has made popular is giving a new dimension to the computing, that is, the artificial reality dimension, made possible by the new object oriented programming technologies, by powerful graphical microprocessors, by immense storage units based on optical discs and by the convergence of TV technologies in to the personal workstations. Take as an example that of the mayor of a large city like Milano. In his desk-top video computer the map of the city will appear. In that map the projects under way will be represented. The mayor will enter some of these by touching with the mouse pointer the selected project. A bridge under construction will appear: cost, designers, regulations, difficulties, suggestions and many other information related to the bridge will be immediately accessible to the him. It is not difficult to imagine the rest of the story: it is just our future that our artificial reality is making more visible.

With the artificial reality approach and with all the multimedia technology available informatics will become multimedia informatics. Speech, graphics, images, animation and moving pictures will be integrated together with computer networks. It will be quite difficult to classify our future products: TV, voice recorder, calculator, data bank, images bank, intelligent tutoring system, number cruncher, problem solver, distance work coordinator, support to reading and composition, game machine? No! It will combine all of them. And Europe has a great opportunity from multimedia systems: entering a project and an organization in a multimedia system reduces instructional efforts, less language competence is needed, accessing readily to data and information becomes pleasant.

Yes, perhaps more technology is required. Perhaps Europe will buy more USA and Japanese technology. But one thing can be taken by sure: the European quality and European culture will survive only if those qualities will be embedded in the European Artificial Reality Worlds. Forgetting this dimension would be as if in the Renaissance the old cultures were neglected. At that time stone was the building material. Again a stone (silicon) is the material. But again our culture has to be impressed in our stone under the shape of our natural artificial realities.