6. Emerging Technologies

The 80's have witnessed the development of many technological advances, particularly in the fields of computer systems and architectures. So great has the rate of development been that the "life cycle" of most commercial computer-based applications is said to be in the order of three years! This implies that upgrading to remain current must take place every three years or so, with the continuing evaluation and planning for such upgrading an important aspect of organizations which use informatics. In fact, a current management principle in support of regular strategic planning maintains that failure to institute regular planning simply means that the inevitable upgrade, when it finally must be done, will be every bit as expensive but less well planned and more traumatic for the organization than the continuous upgrade alternative.

Technological changes in computer systems architecture in the 80's are so great as to be considred revolutionary rather than evolutionary. Consider that the personal computer, so powerful and prevalent today in every work environment, was only first announced by IBM in 1981. At that time no one could guess what the future would be for the crude, slow and limited system that represented the first PC. Even IBM felt at the time that it would represent only a minor complement to its main business, yet it has fundamentally changed the computer industry and the modern work environment.

Advances in PC technology alone have been astounding. A high-end system today, perhaps represented by an Intel based 486/33 IBM AT clone, has more than 25 times the processing power and speed of the IBM AT system which it mimics and which was introduced by IBM in 1984 as an improvement to the 3-year-old original PC. More remarkable, the cost of such a system is not any greater than the cost of the original AT system. These trends are also evident in modern desktop workstations, which make available to individual users greater power and much lower prices than very large and powerful minicomputers that were being marketed in 1980. New versions of these workstations, with technologies such as "RISC" (Reduced Instruction Set Chips) and dense chip integration, show version to version improvements in speed measured in orders of magnitude rather than simple multiples.

This ubiquitous trend, which will continue through the 90's, has great significance