

The Dawning of an Information Age

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After the industrial revolution came the post-industrial revolution age. We coined the terms, "industrialised nations" and "an industrialised society". Recently, we talked about the information society in an information age. I wrote about ten years ago, my perception of an information society: "A society in which the very existence of its members is intimately dependent on its ability to harness information."

Are we already in an information age? Are we an information society? Or are we merely trying to make better use of information to improve our productivity per capita, so that our economy can grow and can lead us to have a higher quality of life. Probably we are merely attempting to cope with the shortage of the supply of our natural resources, and the increasing demand on the resources by an expanding population.

Whatever we like to call the emerging age, we need to collate and disseminate information on a global scale, efficiently and speedily. Optical fibers, satellites, and computers, allow the development of the information networks necessary for any-one, any-time, and any-where communication services. Gradual implementation, on a regional and global basis of such communication facilities, is anticipated.

All this development is currently impeded by vested commercial interests and the huge investment involved in the installed hardware-base of the industry. It needs help from better international co-operations. At the same time, it needs a will to resolutely introduce deregulatory measures for new and existing information services. The laws on information usage rights and protection must also be extended and made more appropriate for the future scenario.

Hong Kong is in the vanguard in the use of

information technology. In its pursuit of success in commerce and industries, it has built the world's most advanced communication and information service infrastructure in a highly deregulated operational environment. The future prospects of this place growing into a pioneering information society is expected soon to be more concrete.

The impact of any-time, any-place, any-person communication is ubiquitous. Not only will it generate a desire to be always reachable, but it will also prompt us to seek ways to communicate with inanimate objects such as our TV's, heaters, door locks, etc. This will require a communication capability on all products and will generate a host of new information services. The result will undoubtedly improve our productivity. So far, apart from wireless telephones, the opportunities and threats are elusive and lead only to speculative hypes and early business failures. It just shows that opportunities that are intimately associated to human needs mature slowly and gradually.

The media and entertainment industries can be considered as a part of the communication business. If this is so, this is the only sector in which information technology enabled major expansions. A whole new industry grew up and which is now known as the "cable TV networks". It probably represents the only new successful information business.

On the technology front, the challenges are many but are expected to be met in the course of time. For improving our ability to process information, we need even more powerful CPU's for our computers. The continuing reduction of the size of semiconductor devices, by a factor of two every two years, will continue over the next

ten years. There is good hope for faster switches and for solving the propagation delay problem. This means that we can count on the emergence of CPU's, with up to five orders of magnitude increase in power. Likewise, we should see great improvement in information storage devices.

For massive storage devices, the challenges are in the organization of intelligence rather than in the achievement of sheer size. Generic solutions are difficult since the requirements are highly application specific. Artificial intelligence, neural network and many other schemes have so far run against unsurmountable difficulties in attempting the emulation of human intelligence.

The I/O devices made significant advances towards better human and machine interfaces. The realization of pattern recognition, voice recognition, auto-translation IC chips facilitate input coupling. The flat panel display and projection technology improve the output interface. The digital signal processing reduces transmission capacity requirement while retaining high fidelity sound reproduction and high resolution picture quality. However the performances are still short of the ultimate expectations.

The range and the number of new information services that can be and that will be introduced are large. What should come first and why should they be introduced are knotty questions to be answered carefully. There are riches to be made and there are real contributions to be made to the global economy via productivity improvements.

Optical fiber being one of the most important parts of the infrastructure will undoubtedly continue to play a critical and major role. Eventually, there will be fibers to each home. It

will be an unbelievable situation when we have the super-highway all the way to each person's door step. It will also present to network designers and planners a number of important traffic management issues that make current traffic congestion problems on our motorways or on the Internet so trivial.

When it comes to old habits of human beings, they die hard. This is particularly noticeable in our normal communication habits. When the telephone was introduced, the letter writers predicted the demise of the art of writing. When the television arrived, the faithful radio listeners swore allegiance to the pure joy of listening and resented the images intruding into their parlours. What the impact of the information technology on mankind is difficult to predict. The onslaught of new information services will be resisted vehemently by individuals and by company boards. What can be predicted is that the resistance will be highest when the service and our working habit differ the most.

Despite of our innate reluctance to change, our in-born inquistiveness and our darign spirit shall propel us to spearhead changes. New information services will be developed and adopted. The spirit of the information age is knocking at the door.