

CABLING BRITAIN
WHAT RELEVANCE FOR INFORMATION TECHNOLOGY

One of the most remarkable coincidences of recent years was the emergence of the Cable issue in 1982, Information Technology year. It was a coincidence. The seminal Cable Systems report produced by ITAP was researched and written in 1981. Cable as an issue had been in debate for nearly 20 years. The publication of the ITAP report in March 1982 was the trigger for re-staging and concluding the debate.

During the last year two further Government papers on Cable have been published - the Hunt Report on the broadcasting implications of Cable and the April 1983 White Paper - The Development of Cable Systems and Services. The first 12 cable franchises will soon be awarded and later this year legislation will be introduced to establish the legal and institutional framework for cable. In less than two years, Cable will have moved from an idea to an accepted part of our telecommunications systems. The pace has been breath-taking and the full implications have not yet been generally appreciated.

Perhaps a good starting point would be to define the overall telecommunications system - the so-called Four Circles. Imagine four concentric circles at the centre of which is 'homo sapiens'. The first and innermost circle is the home.

By the end of the century, only 17 years away, the home will have its own telecommunications network. It is already beginning to happen. The first generation of micro-based appliances produced kitchen timers and power tools. Second generation appliances are already providing some interaction for residential remote control and home security systems. New generations of appliances will provide integrated home microprocessor networks. The stimuli for these networks will be consumer-created. They will provide reduced energy consumption, convenience of monitoring and control and improved security. Public power utilities will want to share some of the data produced by these systems for residential load management and control and for remote meter reading.

If all that sounds futuristic, note that a 'Home Bus Standards Association' has recently been established and that three of its members are Matsushita, Sony and Texas Instruments. Coincidentally, Philips has published a proposal for a Domestic Digital Bus (known as D2B) which is aimed at defining inter-connect standards for TVs, VCRs, videodisks and stereo audio equipment. As with all telecommunications issues, standards are critical and it is to be hoped that U.K. domestic appliance suppliers will move into this area, if only for defensive reasons.

The device that will be at the heart of the home network will be long debated. But an enhanced television with a 16-bit microprocessor and moderate memory could, with today's technology, run a timeshared home bus network. We will return to this subject later.

The home system will have a maximum of four external communication links - a telephone line, a broadband two-way cable TV-like connection, an antenna for terrestrial broadcast and teletext reception and a satellite reception antenna. The home is the first circle.

The second circle is the workplace or learning-place. In the workplace, the emphasis will be on good communication, recording and control functions, so that assets can be effectively used. In the learning-place, the emphasis will be on communications, interactivity and information retrieval. Both will rely on local area networks that will interconnect with other networks outside the work or learning places.

Local area networks (a sort of news and data ring main for a big building or factory) are going the way of all computer-industry telecommunications networks - towards the Tower of Babel.

There are three principal protagonists - ring, baseband and broadband. All have their acolytes and pall-bearers. Broadband, particularly using cable TV technology, would seem to offer the most comprehensive facilities at the lowest cost - but that is no guarantee of its success. At the moment, industry is heading for a classic re-run of the old AC/DC and analogue/digital arguments. The workplace/learning-place will have the same multiple external interfaces as the home.

The third circle is the local or district loop - the metropolitan area network or Cable TV. This loop is for both residential and business consumers. It will be broadband cable providing multi-channel television with broadcast and narrowcast facilities, two-way digital transactional services for telebanking, teleshopping et al, that are data-based, not voice-based. There will be interfaces for home security and, perhaps, environmental management systems. These loops do not exist in the U.K. The new Cable systems will provide those loops. A franchise will be obtained by an operator from the proposed new Cable Authority and a license will be obtained from the Office of Telecommunication (OFTEL).

The local loop will connect with the Packet-Switched Service (PSS), so that data can be routed from and to the home using the low-cost, high data integrity and national, international and intercontinental capabilities of PSS. Terrestrial and satellite broadcasting will be received from the local loop by community antennae. Narrowcasting will originate locally.

The local consumer loop has many attractions, not least the facility to improve the cost-effectiveness of satellite broadcasting by distribution through local cable. It is perhaps not generally appreciated that the overall cost of implementing a direct broadcast satellite (DBS) system for the U.K., providing a maximum of five TV channels with satellite reception dishes on every roof, is much the same as the cost of cabling most of the homes in the U.K. with broadband cable and providing up to 50 video delivery channels - ten times as many - together with two-way data services. An attractive strategic and commercial development would be to deliver DBS by local loop from a community antenna. This would encourage investment in local loops, laying the foundation for further service extension in due course.

The local loop is the prerequisite for the development of consumer telecommunications. It may well have an impact on the standard of living of consumers similar to that of the advent of piped gas and electricity at the turn of the last century.

The fourth circle, connecting all the others together, is the national, international and intercontinental telecommunications (N.I.I.T) network. N.I.I.T. includes PSTN and PSS. This is the ring that holds the circles together and gives the overall network a system environment in which it can function. The N.I.I.T in the U.K. will be a mixture of public and private enterprise, although it is hard to see the pre-eminence of British Telecom in transmission and switching ever being seriously challenged. However, the spur of competition is likely to cure the old problem of customer dissatisfaction and encourage innovation and enterprise. Long-term, the user can only benefit.

There are thus four circles and they fit together. The scheme is not entirely tidy. There are some loose ends. One of these is radio systems. Business demands for mobile radio are growing. Mobile radio is of critical importance to business transportation. At the same time, consumers are becoming aware of the convenience and social benefits of Citizen's Band. Our cluttered airwaves in the U.K. are not conducive to simplistic solutions, but Cellular Radio has been approved and will offer major benefits to users.

With all these developments and the corresponding changes in the regulatory environment for telecommunications, it can be seen that we are moving out of a deprived telecom situation into a rich and varied position which will bring a plethora of new products and services.

There have been some noisy arguments about precisely what technology to use for cable. Experts have materialised on tree and branch or switched stars. Coaxial cable or fibre optics or both have exercised many pundits. But unlike many previous excursions into high technology, cable will be financed by the private sector. Thus the final technological mix chosen will be

on the basis of cost justification against benefit. Pragmatism will be the order of the day.

The ITAP report postulated the use of entertainment services on cable to help finance the network infrastructure for information services which ITAP believed were far more significant in the long-term. Cable systems currently being planned would have 20-30 channels of television material plus interactive data services.

There are 10 information services under consideration. These are:

- information services similar to teletext delivered by a full TV channel bandwidth teletext service that would display, typically, any pages of information from a 150,000-page database in less than one second, or some 20 times faster than the existing teletext services.
- teleshopping, with retailers and mail order houses now positioning themselves for the electronic merchandising of their goods. Minor legislation clarifying credit law and consumer protection would be needed for consumer teleshopping.
- telebanking, with banks being pressurised to cut overhead costs and new sources of 'money-shop' competition appearing. Retail banks would move to provide more electronic services from cash dispensers in factories to teleservices from home or office.
- telepublishing, or the electronic distribution of magazines, newspapers and newsletters.
- reservations services catering for airline, train, theatre, hotel and car rentals.
- teledelivery services covering videogames, films, telesound (substituting for LP records and audio cassettes) and computer programs for home use.
- telemail and telemessaging services, interfaces into the national, international and intercontinental telephone networks, to take messages into and out of homes and offices.
- educational services offering computer-aided interactive video learning.
- 'gateway' services enabling home terminals to connect to other networks and databases for teleworking purposes. Just as radio hams roam the airwaves of the world, so home information buffs would roam information networks of the world.
- security systems based on installed home sensors to provide fire, police and medical alert and inhouse surveillance for

baby-sitting and other purposes.

The commercial viability of cable is another subject for noisy argument. During the heated debate in 1982, cabling was accused of being "quick buck" exploiters. The same accusers say in 1983 that cable is a licence to lose money. The reality has always been that cable is a long-term investment with good opportunities for reasonable returns provided the services are attractive to consumers. Cable is a business that must be very close to its customers.

The future of the information services is a subject that is rarely addressed. There are two reasons for this. Firstly, there is no experience of information services that is relevant. Secondly, perceptions of what the consumer will or will not pay for differ. There is general agreement that a sea-change in consumer attitudes to information services could come once it was publicly appreciated that information is a tradeable commodity.

The focus in Information Technology to-date has been on 'technology'. The technology is largely here and we now need to focus on 'information'. A good start would be in re-defining the Copyright Laws and establishing appropriate international conventions on copyright. The intellectual property in information must receive formal recognition.

To a large degree such recognition has already been given to 'entertainment' through organizations such as the Performing Rights Society. The distinction between information and entertainment will blur at the edges. We already talk of 'infotainment' as the composite software on the system. That software must be adequately protected.

Investment in cable is expected to be running at £1 billion per annum within the next five years. Much of that investment will be in software. Most of that software will be new material. Contrary to expectations, cable will not be constantly re-cycling old movies. It will offer a rich and varied menu of programme material both in the televisual and information senses. It will be constantly changing to match the fashions of the day, the tastes of the consumers and the needs and aspirations of the users.

A great new industry will be built. British cable technology is the world-leader and there is every reason to believe that both the technology and the software, in the broadest sense, will be saleable overseas. Most of the investment will be made by British companies with British companies. There should be substantial benefits throughout the economy.

For Information Technology it provides a sunshine industry, a shop-window for British capability, products and services and a contribution towards a better quality of life for consumers.

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BIOGRAPHY

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Michael Aldrich is Chief Executive of Rediffusion Computers Ltd, a leading UK information technology company specialising in office and communication systems, and Chief Executive of Rediffusion Business Electronics, a high technology audio/video communications systems and software company. The two companies span the information industry.

Aldrich graduated from university in 1962 and spent his entire career in the computer industry. During that career he has been responsible for activities ranging from product design to marketing. He was the author of the seminal paper on Cable TV and the pioneer of business videotex and integrated office systems. He was the inventor of the Teleputer multi-technology micro-computer and developed Signcheck, the world's first practical static signature verification system. He co-authored The Cable Systems Report published by HMSO in March 1982 and has published a book on "Videotex - Key to the Wired City" (Quiller Press 1982). In addition he has published over a hundred papers and articles.

Aldrich is a member of the Prime Minister's Information Technology Advisory Panel and a member of the CBI Information Technology Panel. He is a council member of Brighton Polytechnic and a frequent lecturer in information technology and management.

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